LG

FF-H175A/AD

MODEL

SERVICE MANUAL

CONTENTS

MICRO COMPONENT SYSTEM

SPEAKER SYSTEM

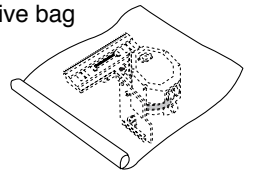
SERVICING PRECAUTIONS

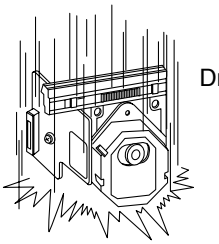
NOTES REGARDING HANDLING OF THE PICK-UP

1. Notes for transport and storage

1) The pick-up should always be left in its conductive bag until immediately prior to use.
2) The pick-up should never be subjected to external pressure or impact.

Storage in conductive bag

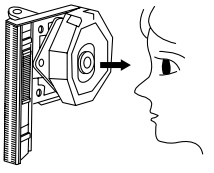




Drop impact

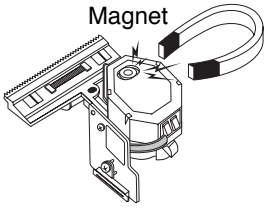
2. Repair notes

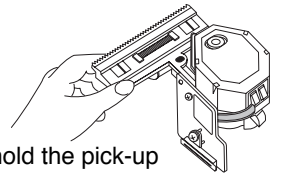
1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
4) Laser beams may damage the eyes!
   Absolutely never permit laser beams to enter the eyes!
   Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.



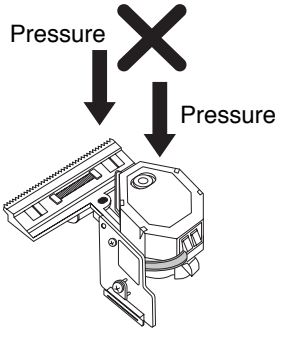
NEVER look directly at the laser beam, and don't let contact fingers or other exposed skin.

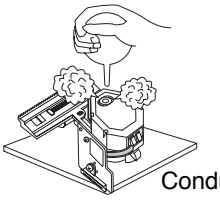
5) Cleaning the lens surface
   If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.



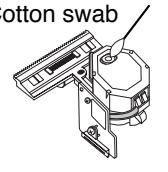


How to hold the pick-up





Conductive Sheet



Cotton swab

6) Never attempt to disassemble the pick-up.
   Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

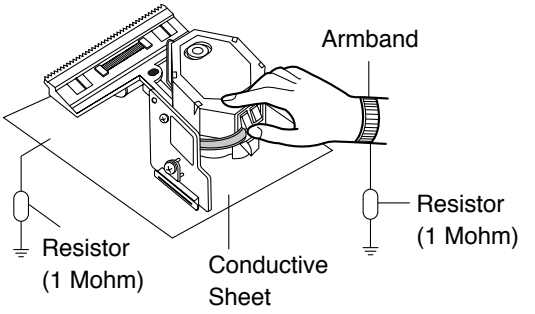
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

1. Preparations

1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static electricity is high voltage, components can be damaged, and for that reason components should be handled with care.
2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature of humidity is high, where strong magnetism is present, or where there is excessive dust.

2. Notes for repair

1) Before replacing a component part, first disconnect the power supply lead wire from the unit
2) All equipment, measuring instruments and tools must be grounded.
3) The workbench should be covered with a conductive sheet and grounded.
   When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag. (This is because there is the possibility of damage by static electricity.)
4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
5) Workers should be grounded by an armband (1MΩ)
6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will by installed.

CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handing unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

[CAUTION. GRAPHIC SYMBOLS]

	THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED “DANGEROUS VOLTAGE” THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.
	THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

ADJUSTMENTS

This set has been aligned at the factory and normally will not require further adjustment. As a result, it is not recommended that any attempt is made to modificate any circuit. If any parts are replaced or if anyone tampers with the adjustment, realignment may be necessary.

ADJUSTMENT & TEST POINT

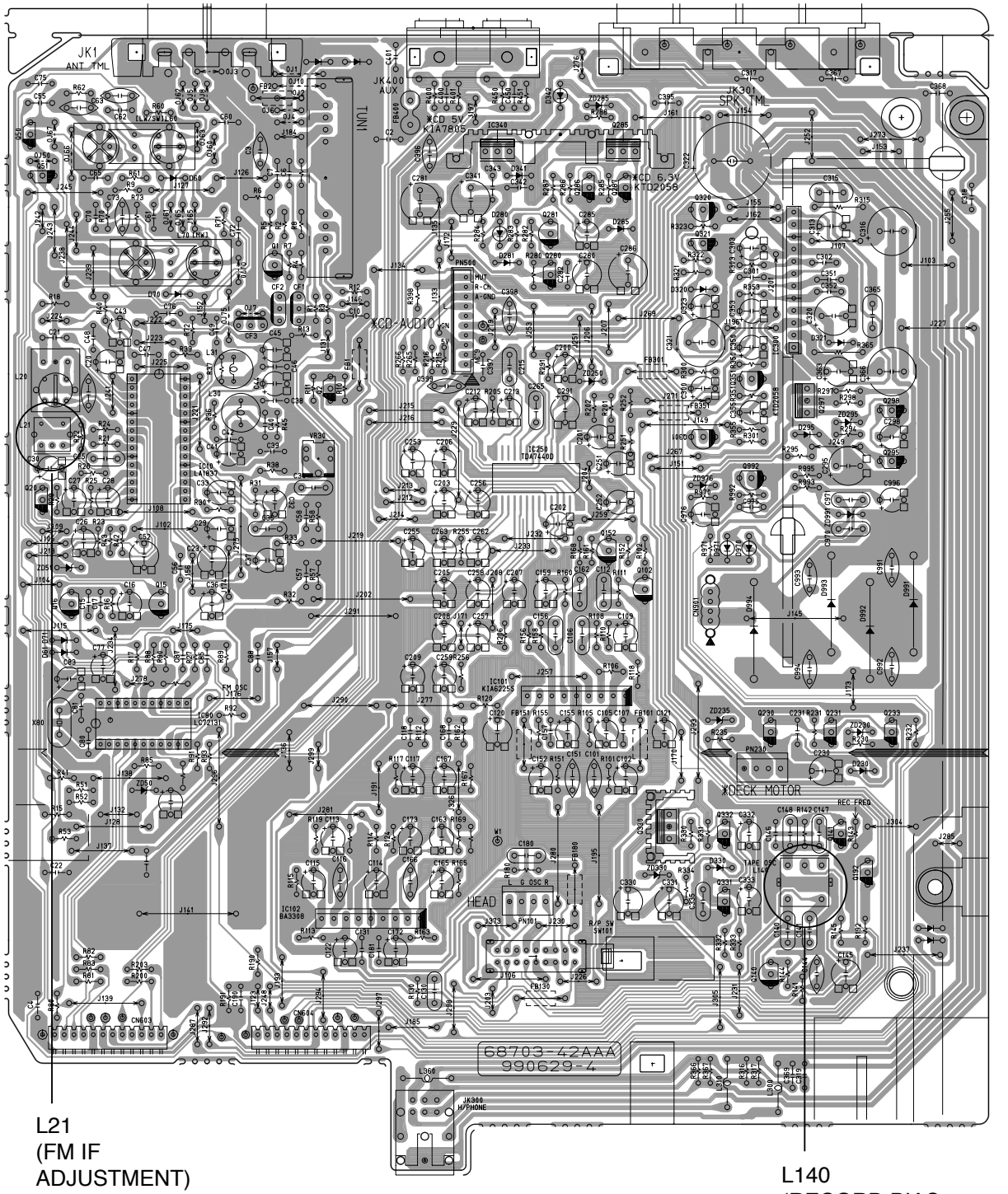


Figure 1. Main P.C. Board

TUNER ADJUSTMENT

Item	Test Point	Adjustment	Adjust for
DC Voltage	IC10 26, 28 pin	L21	0V±50mV

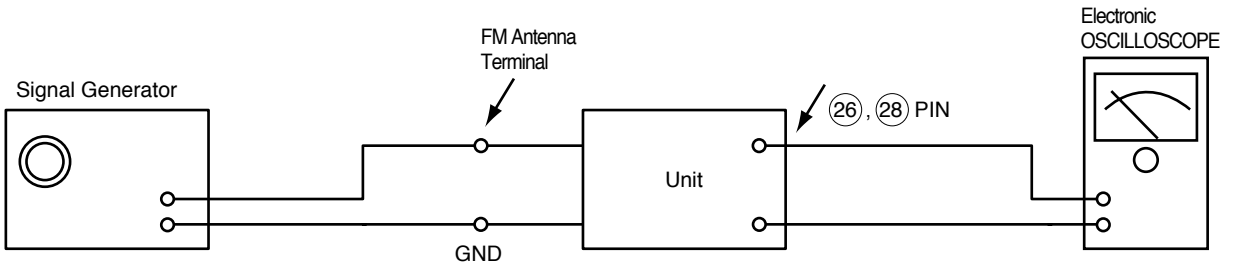


Figure 2. Tuner(S curve) Adjustment Connection Diagram

TAPE DECK ADJUSTMENT

1. AZIMUTH ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust for	Remark
Playback	MTT-114	Speaker Terminal	Head Screw	R/L Maximum	Forward:Righthand Side Screw Reverse:Lefthand Side Screw

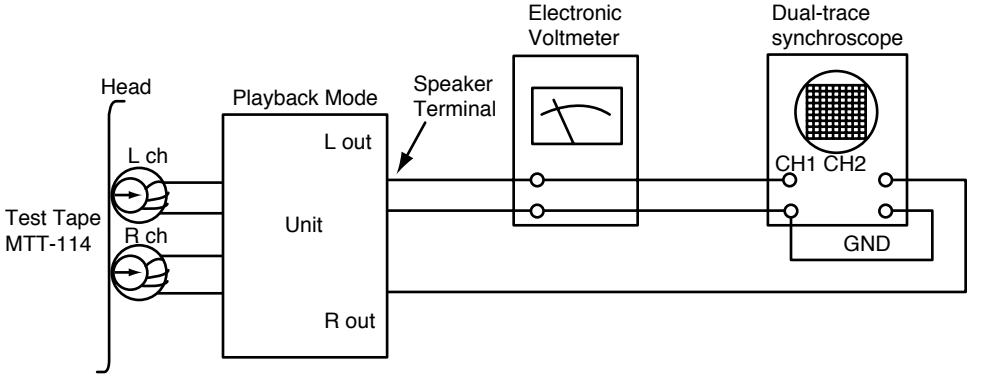


Figure 3. Azimuth Adjustment Connection Diagram

2. RECORD BIAS ADJUSTMENT

Deck Mode	Test Tape	Test Point	Adjustment	Adjust for
Rec/Pause	MTT-5511	Erase Head Wire	L140	83kHz±5kHz

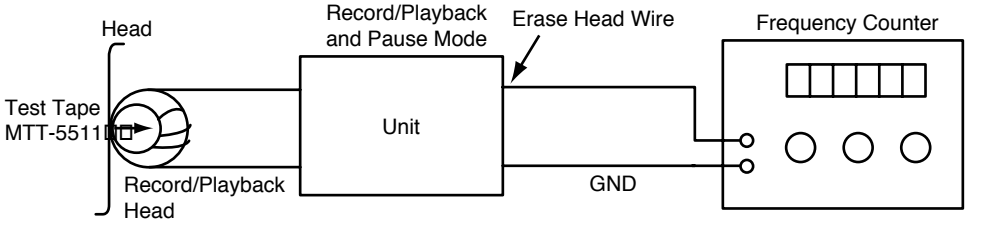


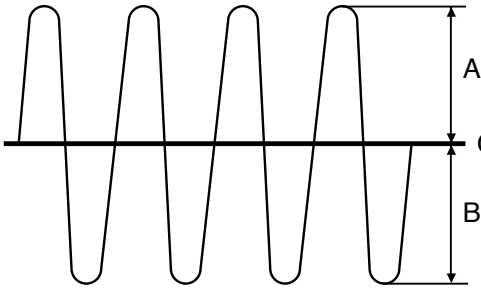
Figure 4. Record Bias Adjustment Connection Diagram

CDP ADJUSTMENTS

• When change the pick-up must be confirm as follow

1. TRACKING BALANCE CONFIRMATION

1) Connect the oscilloscope to TEO and REF.(IC501 pin 54 and 71)
2) Access from 1st selection to last section of test disc (YEDS-18)
3) Confirm the normal state of tracking error signal (T.B deviation : less than ±3%)



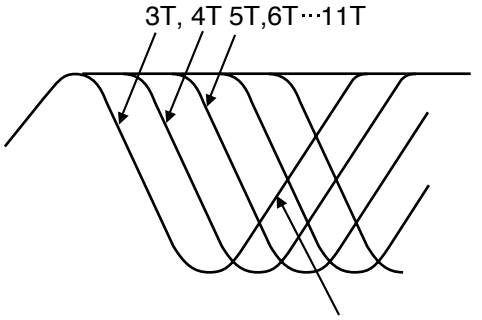
A=B

T.B deviation(%)

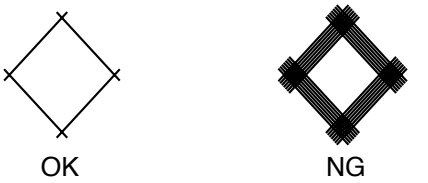
$$= \frac{A-B}{A+B} \times \frac{100}{2} \%$$

2. RF WAVEFORM CONFIRMATION

1) Connect the oscilloscope to RF and REF.(IC501 pin 74 and 71)
2) Put a test disc (SONY YEDS-18) into unit and playback the 18th selection of the test disc.
3) Confirm the normal state of RF waveform.
4) Confirm the less than 30nS of Jitter Meter reading.



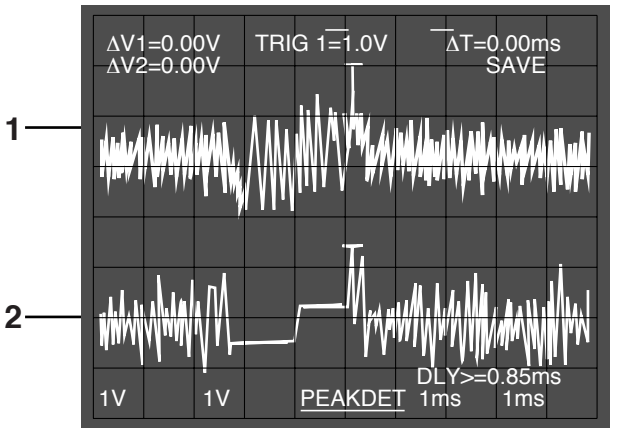
EYE-PATTERN



EYE-PATTERN

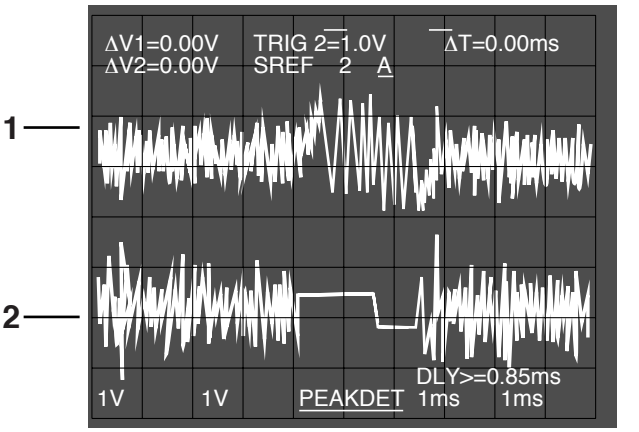
MAJOR WAVEFORM

TRACKING ERROR(REW)



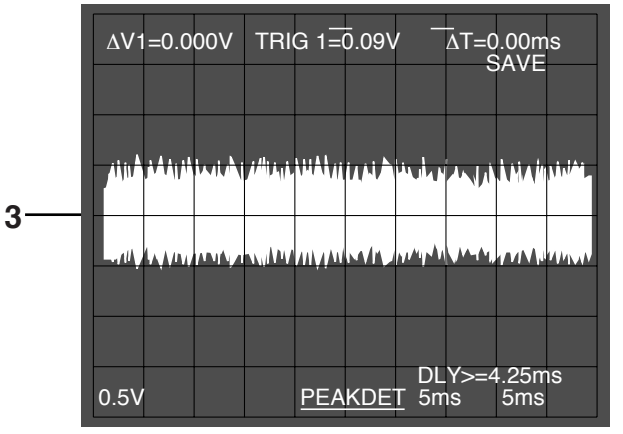
- **Connection** : 1. IC501 pin (54).(TEO)
  2. IC501 pin (50)
- **Inspection** : Check tracking servo circuit.(RWD)

TRACKING ERROR(FWD)



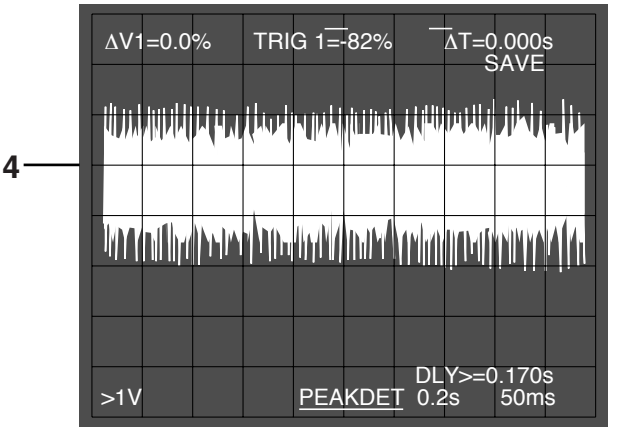
- **Connection** : 1. IC501 pin (54).(TEO)
  2. IC501 pin (50)
- **Inspection** : Check tracking servo circuit.(RWD)

FOCUS GAIN



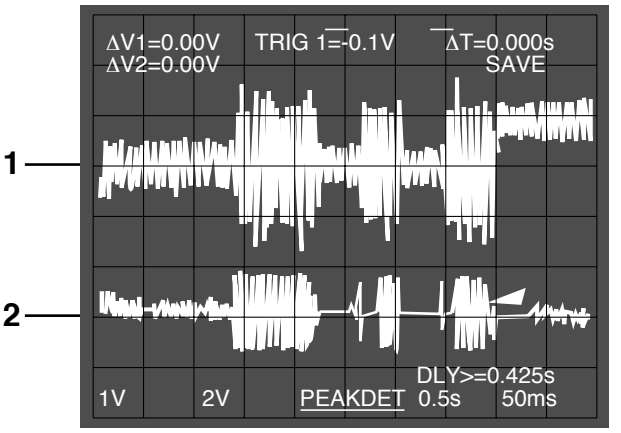
- **Connection** : 3. IC502 pin (1) and (2).
  • Test disc : YEDS-43
- **Inspection** : Confirm focus servo circuit.

TRACKING GAIN



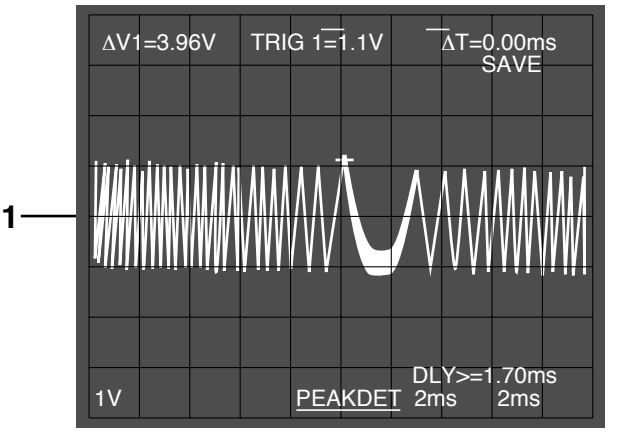
- **Connection** : 3. IC502 pin (26) and (27).
  • Test disc: YEDS-43
- **Inspection** : Confirm TRACK servo circuit.

TRACKING COIL DRIVE



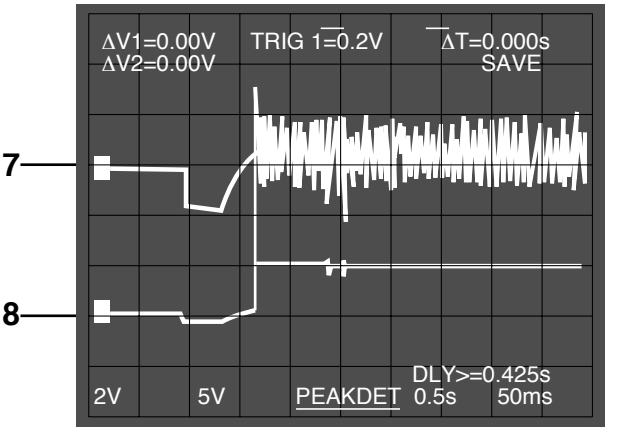
- **Connection** : 1. IC501 pin (54). (TEO)
  2. IC501 pin (50)
- **Inspection** : - Confirm tracking servo circuit.
  - Check IC501 (Cold solder joint or short circuit)

E.F. BALANCE



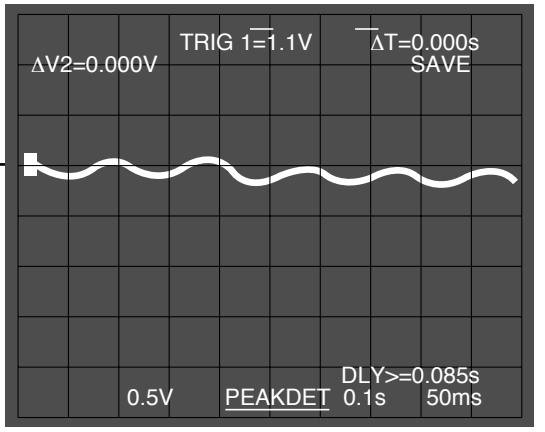
- **Connection** : 1. IC501 pin (54).
- **Inspection** : Confirm tacking servo balance deviation rate

READING



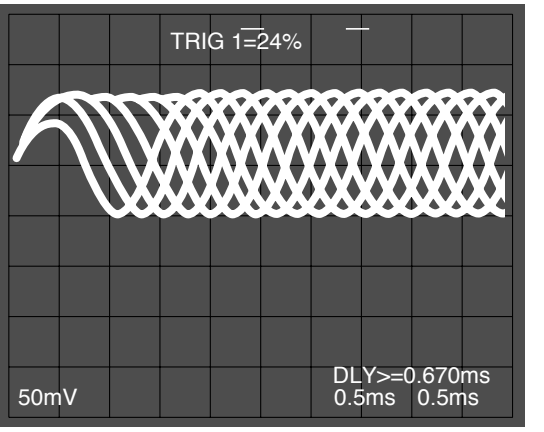
- **Connection** : 7. IC501 pin (48).
  8. IC501 pin (40) (FOK)
- **Inspection** : Check IC502 pin (4) to IC501 PIN (48) (Pattern defective)

9



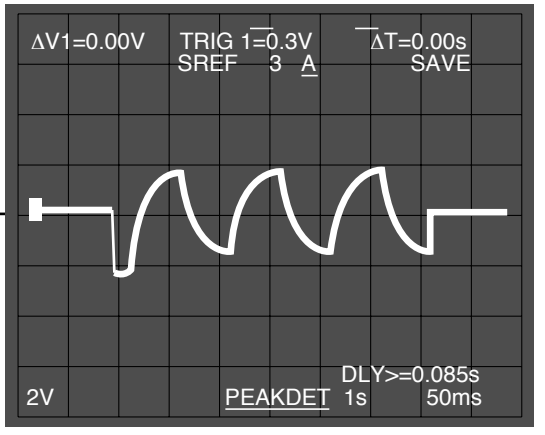
- **Connection** : 9. IC502 pin (17) and (18)
- **Inspection** : - Check IC501 pin (43) to IC502 pin (20) (Pattern defective)
  - Check voltage. (IC502 pin (20))

10



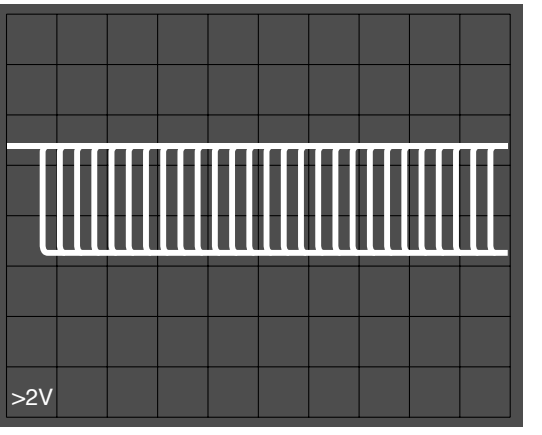
- **Connection** : 10. IC501 pin (74).
- **Inspection** : Check objective Lens of Pickup clear or not

11



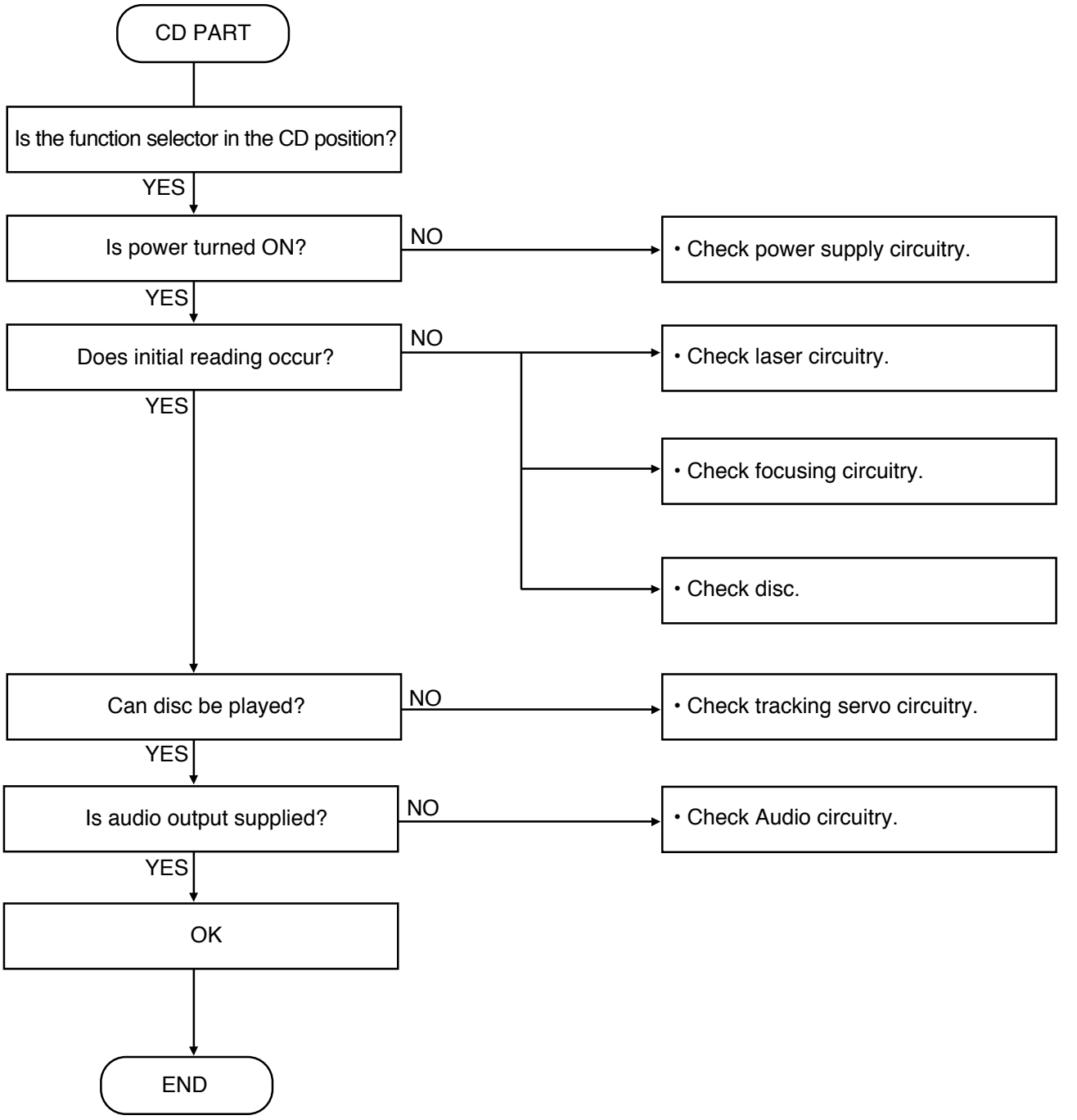
- **Connection** : 11. IC502 pin (1) and (2).
- **Inspection** : - Is focus search signal output to IC501 pin (48)?

12

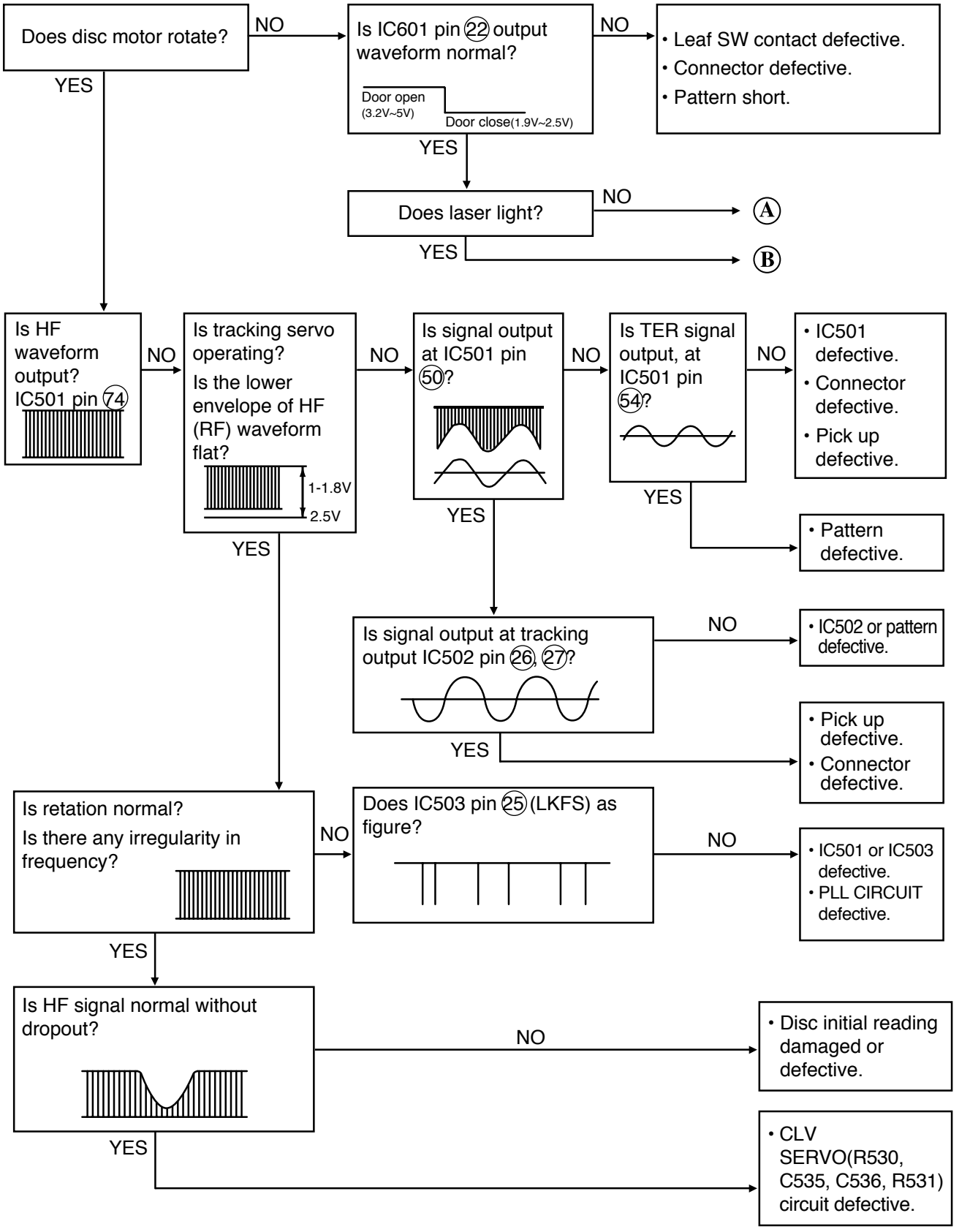


- **Connection** : 12. IC501 pin (33).
- **Inspection** : Check IC503 and surrounding circuit (Cold solder joint or short circuit)

TROUBLESHOOTING GUIDE



1. If initial reading is not carried out (with disc)



Ⓐ When laser does not light

Is below signal “H” at IC501 pin ㊳ (RESET)?

YES

NO

IC601 pin 95 : XLT
pin 94 : XRST
pin 98 : DATA
pin 97 : CLK

Has Pick-up returned to the innermost position?

NO

Are data transferred from IC601?

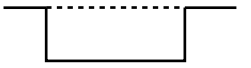
NO

• IC601 defective.

YES

YES

Is below signal output at IC502 pin ⑰, ⑱?



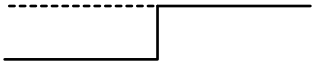
NO

• IC501, 502 defective.

YES

• Slide motor defective.
• Connector defective.

Does pick-up stop after having moved to the innermost position?

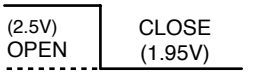


NO

• IC505 defective.

YES

Are detect output input at IC601 pin ㉒?



NO

• LMT SW defective.
• Connector defective.

YES

• IC502 defective.

Does generate about 3.3V at IC501 pin ㊵ (LD)?

NO

• IC501 defective.
• Surrounding Circuitry defective.

YES

Has Laser Power source returned to the Q501?
(Q501 Collector Voltage about 1.8V)

NO

• Connector defective.
• Pick-up defective.

YES

R507»1.0V

YES

• Q501 defective, connector defective.
• Laser defective.

Flow Laser Current?
Both voltage of 507 is about 1.0V?

NO

R507«1.0V

YES

• Laser defective.
• Connector defective. short etc.

Ⓑ When laser light

Do lenses move up and down?

NO → Is signal output at focus search terminal?

IC 501 pin 48 (FEO)

NO → • IC501 defective.
• C527 defective.

YES → Is signal output at IC502 pin 1, 2?

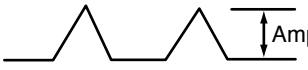
NO → • IC 502 defective.

YES → • Actuator short.
• Connector short.

YES → Is IC501 pin 74 (HF) signal waveform output?

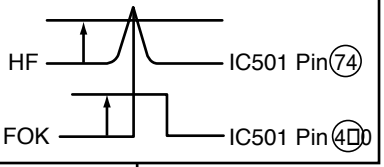
NO → • Connector short.
• IC501 defective.
• Pick-up defective.

YES → The waveform of IC501 pin 74 (HF) is below figure?



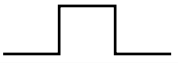
NO → • Turntable height error
• Laser diode degraded.

YES → Is Fok signal output?
(HF and REF) 0.4 over OK.



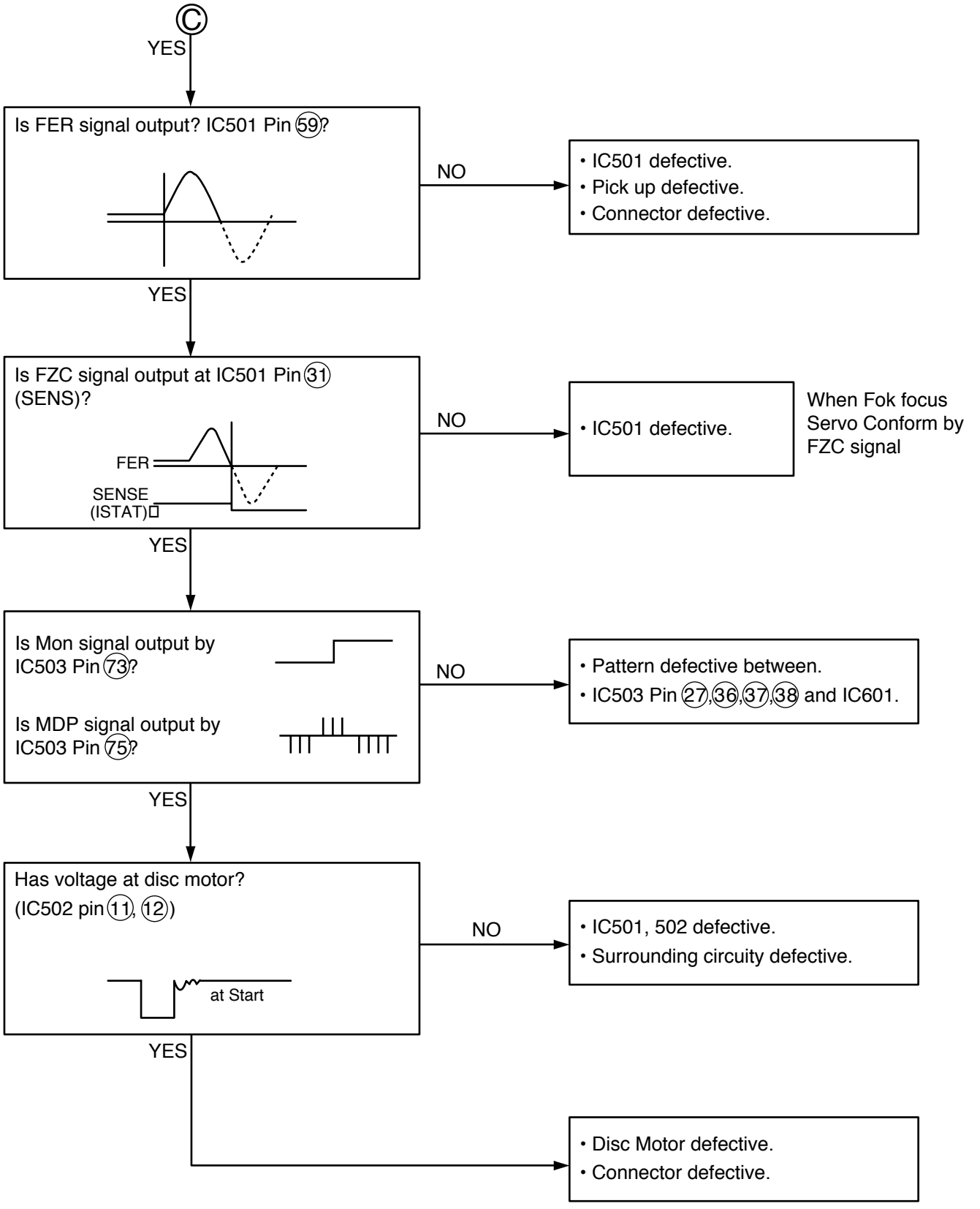
NO → • IC501 defective.

YES → Is Fok signal intput to IC601 pin 99 ?

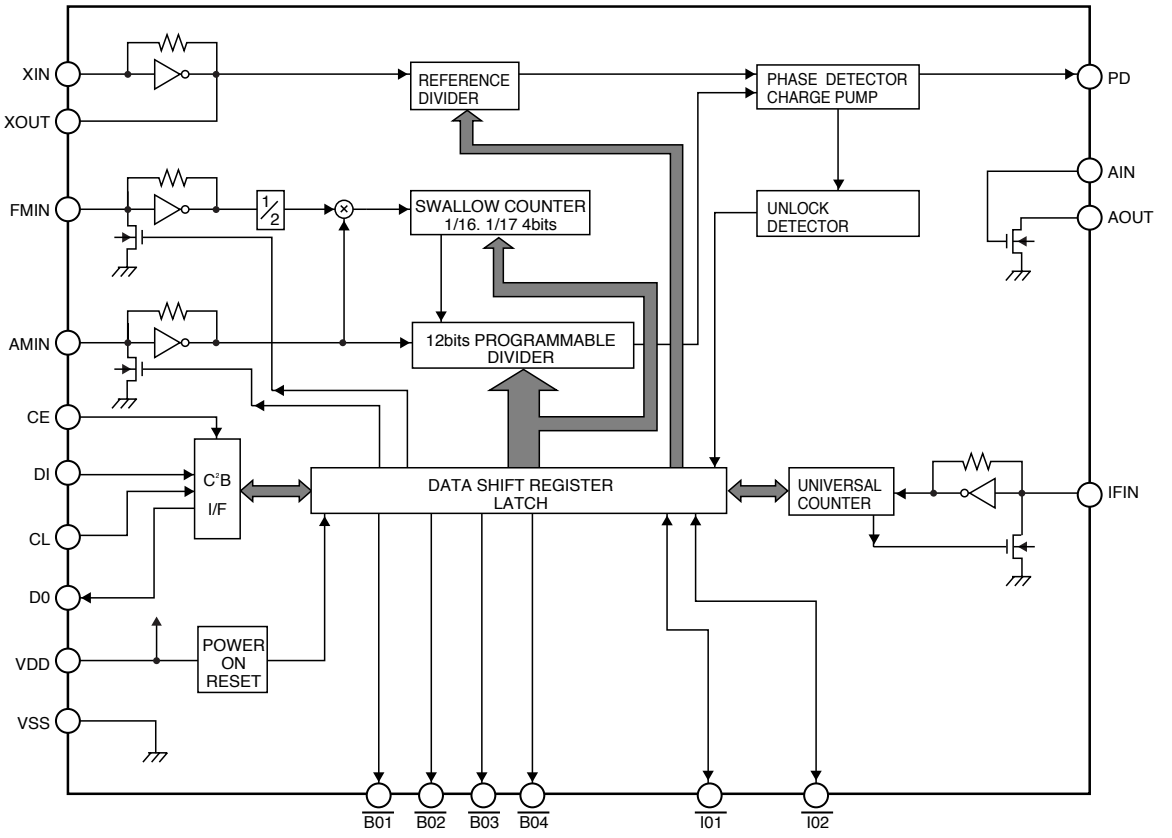


NO → • Pattern defective.

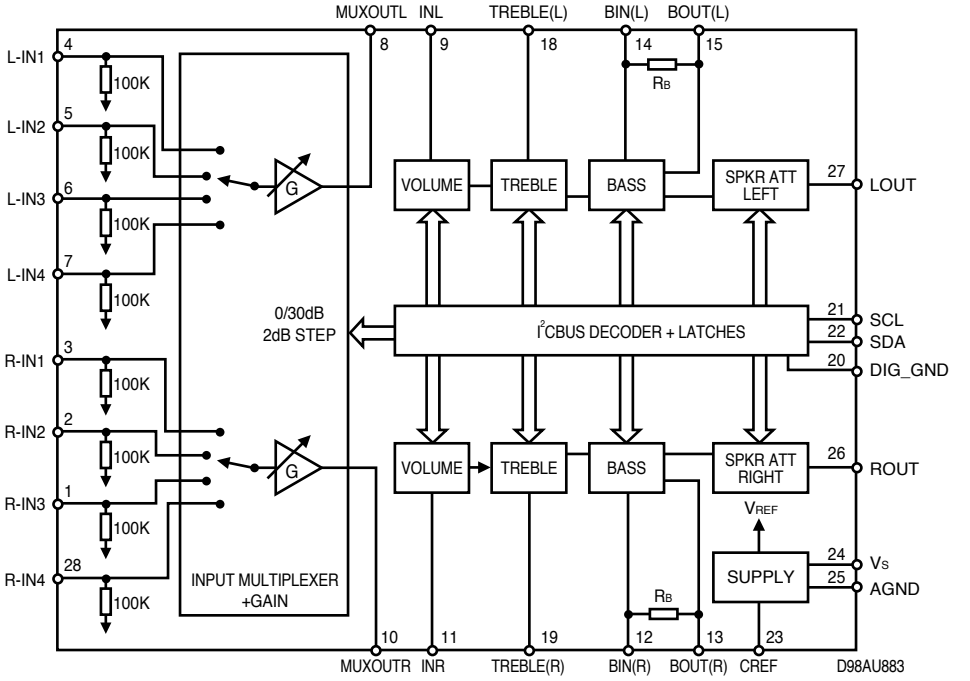
YES → Ⓒ


Ⓒ
YES
Is FER signal output? IC501 Pin 59?
NO
• IC501 defective.
• Pick up defective.
• Connector defective.
YES
Is FZC signal output at IC501 Pin 31 (SENS)?
FER
SENSE (ISTAT)
NO
• IC501 defective.
When Fok focus Servo Conform by FZC signal
YES
Is Mon signal output by IC503 Pin 73?
Is MDP signal output by IC503 Pin 75?
NO
• Pattern defective between.
• IC503 Pin 27,36,37,38 and IC601.
YES
Has voltage at disc motor? (IC502 pin 11, 12)
at Start
NO
• IC501, 502 defective.
• Surrounding circuity defective.
YES
• Disc Motor defective.
• Connector defective.

■ LC72131, 72131M

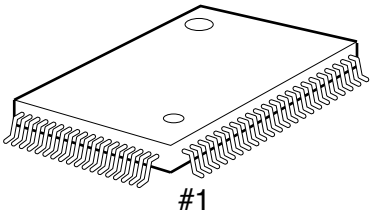


■ TDA7440D



■ KB9223(IC501)

80-QFP-1420C



#1

OVERVIEW

The KB9223 is a 1-chip BICMOS intergrated circuit to perform the function of RF AMP and Servo signal processor for compact disc player application. It consist of blocks for RF signal processing, focus, tracking, sled and spindle servo. Also this IC has adjustment free function and embeded opamp for audio post filter.

FEATURES

- RF amplifier & RF equalizer
- Focus error amplifier & servo control
- Tracking error amplifier & servo control
- Mirror & Defect detector circuit
- Focus OK detrector circuit
- APC(Auto Laser Power Control) circuit for constant laser power
- FE bias & focus servo offset adjustment free
- EF balance & tracking error gain adjustment free
- Embeded audio post filter
- The circuit for Interruption countermeasure
- Double speed play available
- Operating voitage range 3.4V~5.5V

ORDERING INFORMATION

Device	Package	Tempe. Range
KB9223	80-QFP-1420C	-20~+70˚C

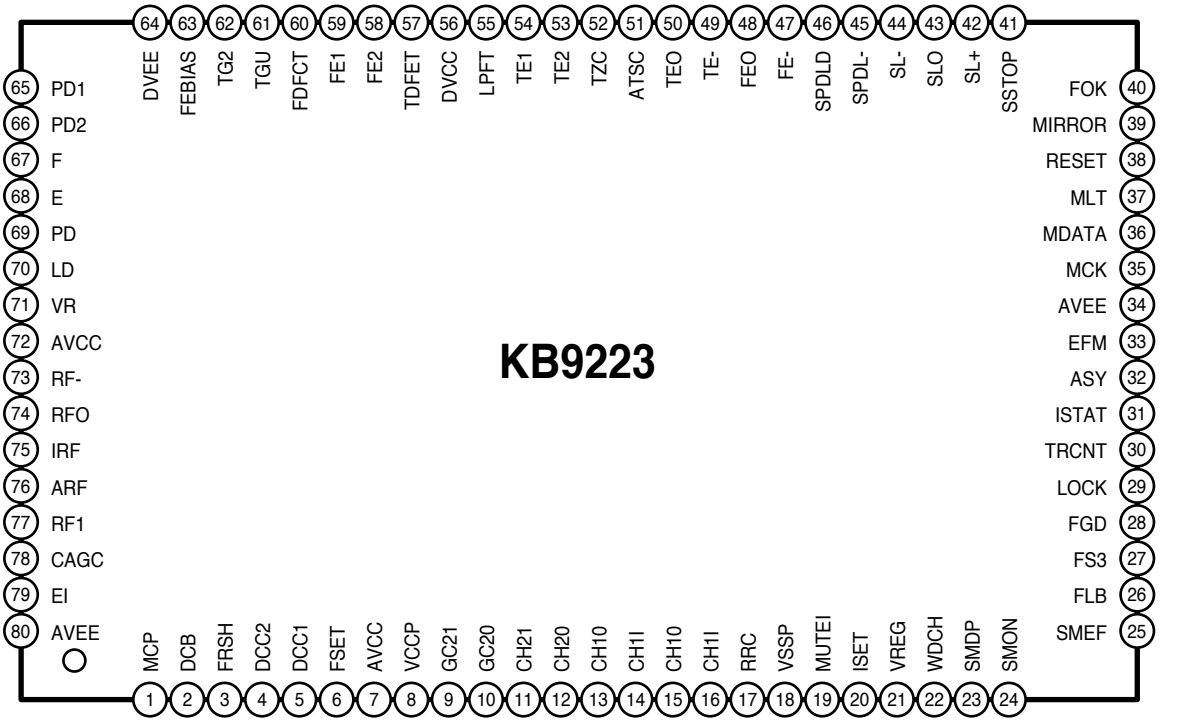
APPLICATIONS

- CD PLAYER
- Video-CD

RELATED PRODUCT

- KS9286 Data Processor
- KS9284 Data Processor
- KS9258D/KA9259D Motor Driver

PIN CONFIGURATION



PIN DESCRIPTION

Pin No.	Symbol	Description
1	MCP	Capacitor connection pin for mirror hold
2	DCB	Capacitor connection pin for defect Bottom hold
3	FRSH	Capacitor connection pin for time constant to generate focus search waveform
4	DCC2	The input pin through capacitor of defect bottom hold output
5	DCC1	The output pin of defect bottom hold
6	FSET	The peak frequency setting pin for focus, tracking servo and cut off frequency of CLV LPF
7	VDDA	Analog ACC for servo part
8	VCCP	VCC for post filter
9	GC2I	Amplifier negative input pin for gain and low pass filtering of DAC output CH2
10	GC2O	Amplifier output pin for gain and low pass filtering of DAC output CH2
11	CH2I	The input pin for post filter channel2
12	CH2O	The output pin for post filter channel2
13	CH1O	The output pin for post filter channel1
14	CH1I	The input pin for post filter channel1
15	GC1O	Amplifier output pin for gain and low pass filtering of DAC output CH1
16	GC1I	Amplifier negative input pin for gain and low pass filtering of DAC output CH1
17	RRC	The pin for noise reduction of post filter bias
18	VSSP	VSS for post filter
19	MUTEI	The input pin for post filter muting control
20	ISET	The input pin for current setting of focus search, track jump and sled okick voltage
21	VREG	The output pin of regulator
22	WDCK	The clock input pin for auto sequence
23	SMDP	The input pin of CLV control output pin SMDP of DSP
24	SMON	The input pin for spindle servo ON through SMON of DSP
25	SMEF	The input pin of provide for an external LPF time constant
26	FLB	Capacitor connection pin to perform rising low bandwidth of focus loop
27	FS3	The pin for high freqency gain change of focus loop with internal FS3 switch
28	FGD	Reducing high freqency gain with capacitor between FS3 pin
29	LOCK	Sled runaway prevention pin
30	TRCNT	Track count output pin
31	ISTAT	Internal status output pin
32	ASY	The input pin for asymmetry control
33	EFM	EFM comparator output pin
34	VSSA	Analog VSS for servo part
35	MCK	Micom clock input pin

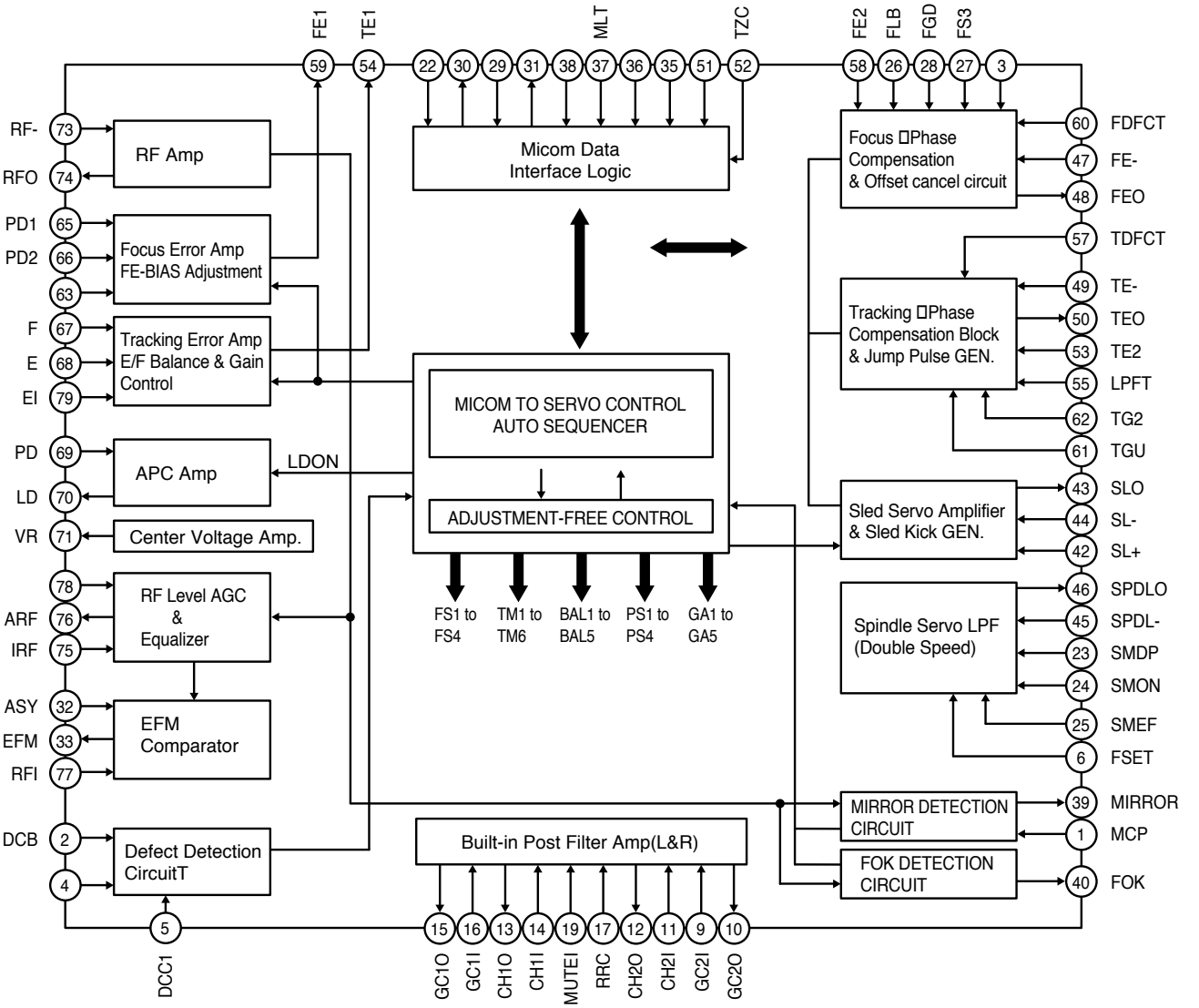
PIN DESCRIPTION (Continued)

Pin No.	Symbol	Description
36	MDATA	Micom data input pin
37	MLT	Micom data latch input pin
38	RESET	Reset input pin
39	MIRROR	The mirror output for test
40	FOK	The output pin of focus OK comparator
41	SSTOP	The pin for detection whether pick_up position is innermost or ton
42	SL+	The noninverting input pin of sled servo amplifier
43	SLO	The output pin of sled servo amplifier
44	SL-	The inverting input pin of sled servo amplifier
45	SPDL-	The noninverting input pin of spindle servo amplifier
46	SPDLO	The output pin of spindle servo amplifier
47	FE-	The inverting input pin of focus servo amplifier
48	FEO	The output pin of focus servo amplifier
49	TE-	The inverting input pin of tracking servo amplifier
50	TEO	The output pin of tracking servo amplifier
51	ATSC	The input pin for Anti-shock detection
52	TZC	The comaparator input pin for tracking zero crossing detection
53	TE2	Tracking servo input pin
54	TE1	Tracking error amplifier output pin
55	LPFT	The input pin of tracking error low pass filtering signal
56	DVDD	The power supply pin for logic circuit
57	TDFCT	The capacitor connection pin for tracking defect compensation
58	FE2	Focus servo input pin
59	FE1	Focus error amplifier output pin
60	FDFCT	The capacitor connection pin for focus defect compensation
61	TGU	The capacitor connection pin for high frequency tracking gain switch
62	TG2	The pin for high frequency gain change of tracking servo loop with internal TG2 switch
63	FEBIAS	Focus error bias voltage control pin
64	DVEE	The DVEE pin for logic circuit
65	PD1	The negative input pin of RF I/V amplifier1 (A+C signal)
66	PD2	The negative input pin of RF I/V amplifier2 (B+D signal)
67	F	The negative input pin of F I/V amplifier1 (F signal
68	E	The negative input pin of E I/V amplifier1 (E signal)
69	PD	The input pin for APC
70	LD	The output pin for APC

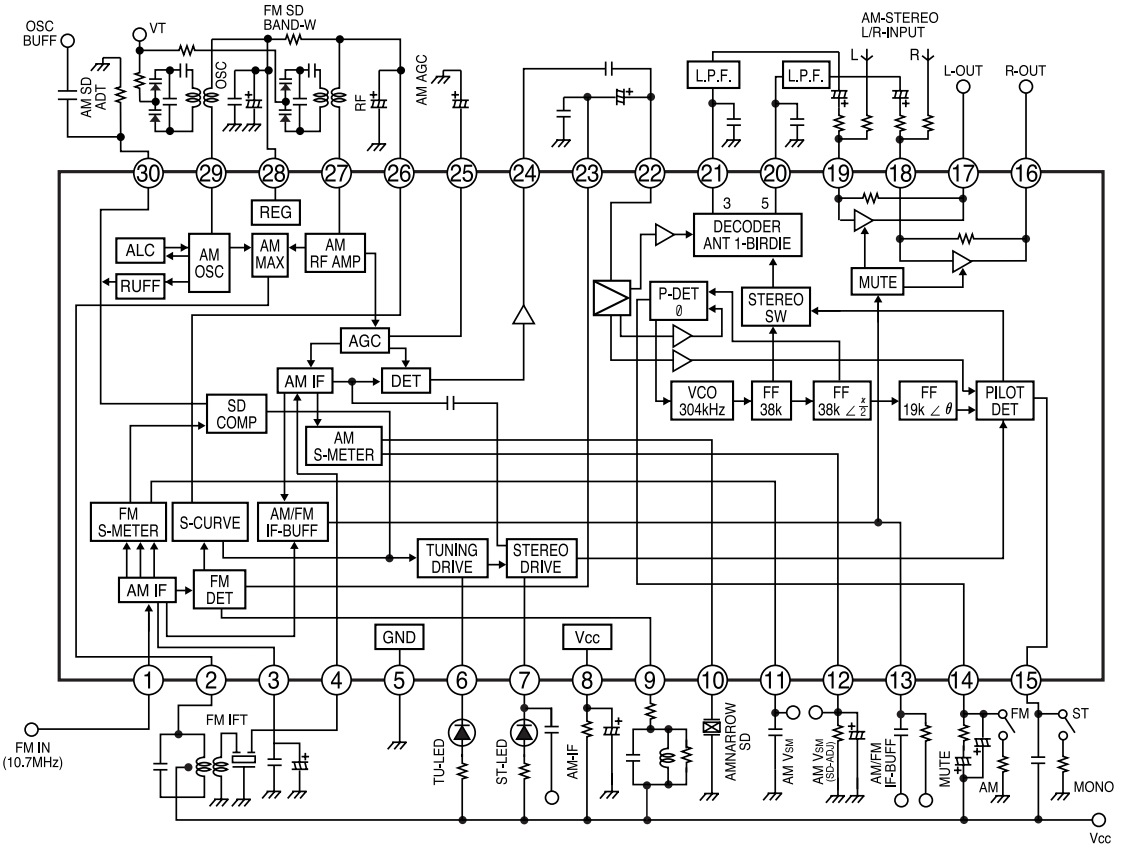
PIN DESCRIPTION (Continued)

Pin No.	Symbol	Description
71	VR	The output pin of (AVEE+AVCC)/2 voltage
72	VCC	VCC for RF part
73	RF-	RF summing amplifier inverting input pin
74	RFO	RF summing amplifier output pin
75	IRF	The input pin for AGC
76	ARF	The output pin for AGC
77	RFI	The input pin for EFM comparating
78	CAGC	The capacitor connection pin for AGC
79	EI	Feedback input pin of E I/V amplifier for EF Balance control
80	GND	GND for part

BLOCK DIAGRAM



■ LA1837

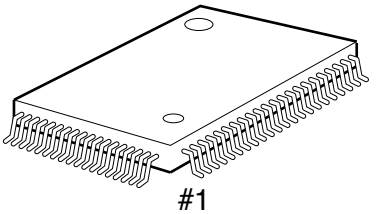

OSC BUFF
VT
FM SD BAND-W
AM SD ADT
OSC
RF
AM AGC
AM-STEREO L/R-INPUT
L
R
L-OUT
R-OUT
L.P.F.
L.P.F.
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
REG
ALC
AM OSC
AM MAX
AM RF AMP
RUFF
AGC
AM IF
DET
SD COMP
AM S-METER
DECODER ANT 1-BIRDIE
MUTE
P-DET
STEREO SW
VCO 304kHz
FF 38k
FF 38k
FF 19k
PILOT DET
FM S-METER
S-CURVE
AM/FM IF-BUFF
TUNING DRIVE
STEREO DRIVE
AM IF
FM DET
GND
Vcc
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
FM IN (10.7MHz)
FM IFT
TU-LED
ST-LED
AM-IF
AMNARROW SD
AM VSM
AM VSM (SD-ADJ)
AM/FM IF-BUFF
MUTE
AM
FM
ST
MONO
Vcc

■ KB9286

DIGITAL SIGNAL PROCESSOR

The KS9286 is a CMOS integrated circuit designed for the Digital Audio Signal Processor for Compact Disc Player. It is a monolithic IC that builts-in 16 bit Digital Analog Convertor, ESP interface and Digital De-emphasis additional conventional DSP function.

80-QFP-1420C



#1

FEATURES

- EFM data demodulation
- Frame sync datection/protection/insertion
- Powerful error correction (C1 : 2error, C2 : 4erasure)
- Interpolation
- 8fs digital filter (51th+13th+9th)
- Subcode data serial output
- CLV servo controller
- Micom interface
- Digital audio output
- Digital de-emphasis
- ESP interface
- Built-in 16K SRAM
- Built-in Digital PLL
- Double speed play available
- Built-in 16 bit D/A converter
- VDD = 3.4 ~ 5.5V

ORDERING INFORMATION

Device	Package	Tempe. Range
KB9286	80-QFP-1420C	-20~+75˚C

PIN CONFIGURATION

PIN DESCRIPTION

PIN NO	SYMBOL	IO	DESCRIPTION
1	AVDD1	-	Analog VCC1
2	DPDO	O	Charge pump output for Digital PLL
3	DPFIN	I	Filter input for Digital PLL
4	DPFOUT	O	Filter output for Digital PLL
5	CNTVOL	I	VCO control voltage for Digital PLL
6	AVSS1	-	Analog Ground1
7	DATX	O	Digital Audio output data
8	XIN	I	X'tal oscillator input
9	XOUT	O	X'tal oscillator output
10	WDCHO	O	Word clock output of 48 bit/Slot (88.2KHz)
11	LRCHO	O	Channel clock output of 48 bit/Slot (44.1KHz), 88.2KHz when ESP ON
12	ADATAO	O	Serial audio data output of 48 bit/Slot(MSB first), double speed output when ESP ON
13	DVSS1	-	Digital Ground1
14	BCKO	O	Audio data bit clock output of 48 bit/Slot (2.1168MHz), 4.2336MHz when ESP ON
15	C2PO	O	C2 Pointer for output audio data
16	VREFL2	I	Input terminal2 of reference voltage "L" (Floating)
17	VREFL1	I	Input terminal1 of reference voltage "L" (GND connection)
18	AVDD2	-	Analog VCC2
19	RCHOUT	O	Right-Channel audio output through D/A converter
20	LCHOUT	O	Left-Channel audio output through D/A converter
21	AVSS2	-	Analog ground2
22	VREFH1	I	Input terminal1 of reference voltage "H" (VDD connection)
23	VREFH2	I	Input terminal2 of reference voltage "H" (Floating)
24	EMPH	O	Emphasis/Non-Emphasis output, H:Emphasis ON, L:Emphasis OFF
25	LKFS	O	The Lock Status output of frame sync
26	S0S1	O	Output of subcode sync signal (S0+S1)
27	RESET	I	System reset at "L"
28	/ESP	I	ESP function ON/OFF control ("L":ESP function ON, "H":ESP function OFF)
29	SQCK	I	Clock for output Subcode-Q data
30	SQDT	O	Serial output of Subcode-Q data
31	SQOK	O	The CRC (Cycle Redundancy Check) check result signal output of Subcode-Q
32	SBCK	I	Clock for output subcode data
33	SDAT	O	Subcode serial data output
34	DVDD1	-	Digital VDD1
35	MUTE	I	Mute control input ("H": Mute ON)

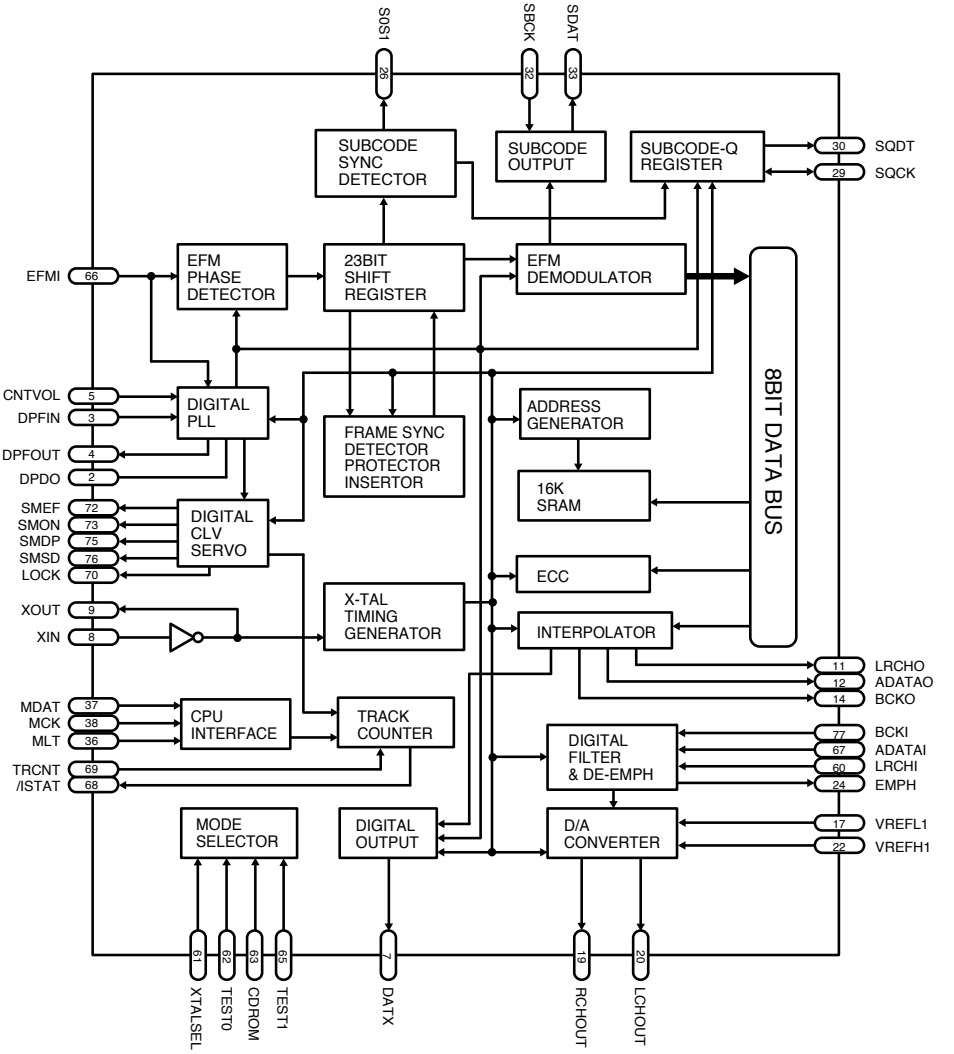
PIN DESCRIPTION (continued)

PIN NO	SYMBOL	IO	DESCRIPTION
36	MLT	I	Latch Signal Input from Micom (Schmit Trigger)
37	MDAT	I	Serial data input from Micom (Schmit Trigger)
38	MCK	I	Serial clock input from Micom (Schmit Trigger)
39	DB8	I/O	SRAM data I/O port 8 (MSB)
40	DB7	I/O	SRAM data I/O port 7
41	DB6	I/O	SRAM data I/O port 6
42	DB5	I/O	SRAM data I/O port 5
43	DB4	I/O	SRAM data I/O port 4
44	DB3	I/O	SRAM data I/O port 3
45	DB2	I/O	SRAM data I/O port 2
46	DB1	I/O	SRAM data I/O port 1 (LSB)
47	C1F1	I/O	Monitoring output for C1 error correction (RA1)
48	C1F2	I/O	Monitoring output for C1 error correction (RA2)
49	C2F1	I/O	Monitoring output for C2 error correction (RA3)
50	C2F2	I/O	Monitoring output for C2 error correction (RA4)
51	C2FL1	I/O	C2 decoder flag (RA5, “H”:When the processing C2 code is impossible correction status.)
52	/PBCK	I/O	Output of VCO/2 (4.3218MHz) (RA6)
53	DVSS2	I/O	Digital ground 2
54	FSDW	I/O	Window or unprotected frame sync (RA7)
55	ULKFS	I/O	Frame sync protection state (RA8)
56	/JIT	I/O	Display of either RAM overflow or underflow for ±4 frame jitter margin (RA9)
57	C4M	I/O	Only monitoring signal (4.2336MHz) (RA10)
58	C16M	I/O	16.9344MHz signal output (RA11)
59	/WE	I/O	Terminal for test
60	/CS	I/O	Terminal for test
61	XTALSEL	I	Mode Selection 1 (H: 33.8688MHz, L: 16.9344MHz)
62	TEST0	I	TEST input terminal (GND connection)
63	CDROM	I	Mode Selection2 (H: CDROM, L: CDP)
64	SRAM	I	TEST input terminal (GND connection)
65	TEST1	I	TEST input terminal (GND connection)
66	EFMI	I	EFM signal input
67	ADATAI	I	Serial audio data input of 48 bit/Slot (MSB first)
68	/ISTAT	O	The internal status output
69	TRCNT	I	Tracking counter input signal

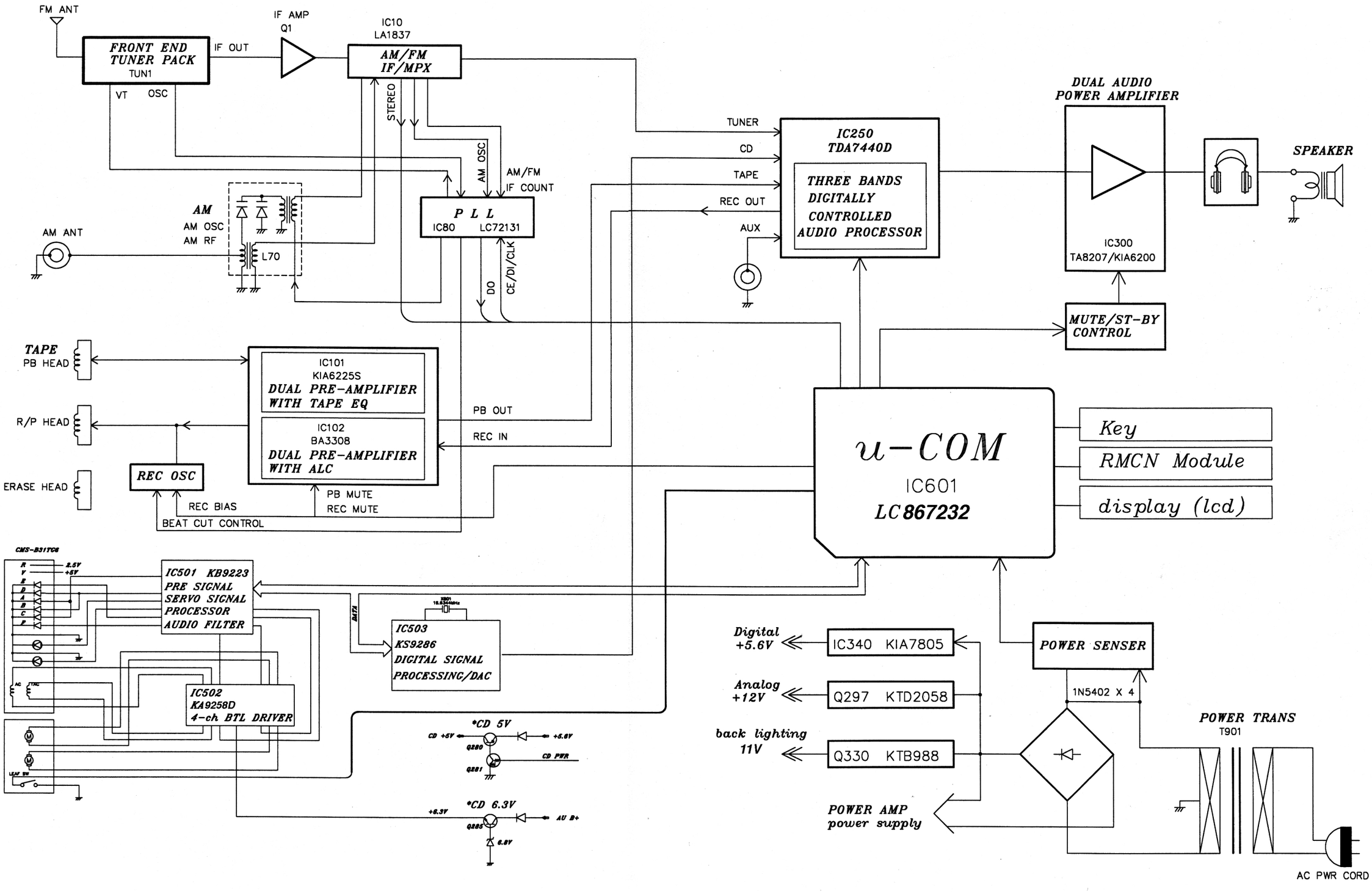
PIN DESCRIPTION (continued)

PIN NO	SYMBOL	IO	DESCRIPTION
70	LOCK	O	Output signal of LKFS condition sampled PBFR/16 (if LKFS is “H”, LOCK is “H”, if LKFS is sampled “L” at least 8 times by PBFR/16, LOCK is “L”.)
71	PBFR	O	Write frame clock (Lock: 7.35KHz)
72	SMEF	O	LPF time constant control of the spindle servo error signal
73	SMON	O	ON/OFF control signal for spindle servo
74	DVDD2	-	Digital VDD2
75	SMDP	O	Spindle Motor drive (Rough control in the SPEED mode, Phase control in the PHASE mode)
76	SMSD	O	Spindle Motor drive (Velocity control in the PHASE mode)
77	BCKI	I	Audio data bit clock input of 48 bit/Slot (2.1168MHz)
78	TESTV	I	TEST input terminal (GND connection)
79	DSPEED	I	TEST input terminal (VDD connection)
80	LRCHI	I	Channel clock input of 48 bit/Slot (44.1KHz)

BLOCK DIAGRAM

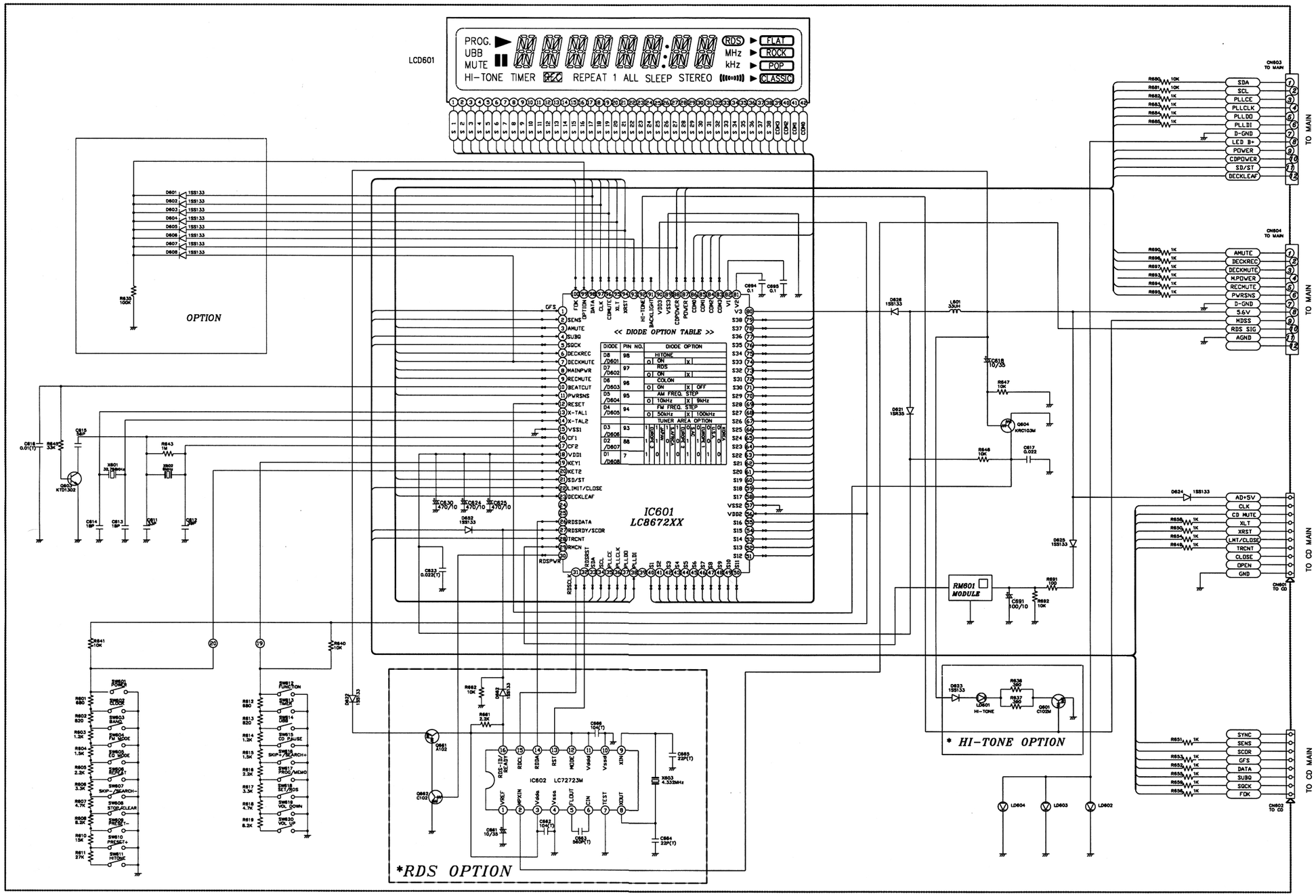


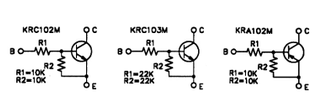
BLOCK DIAGRAM



SCHEMATIC DIAGRAMS

• FRONT & KEY CIRCUIT

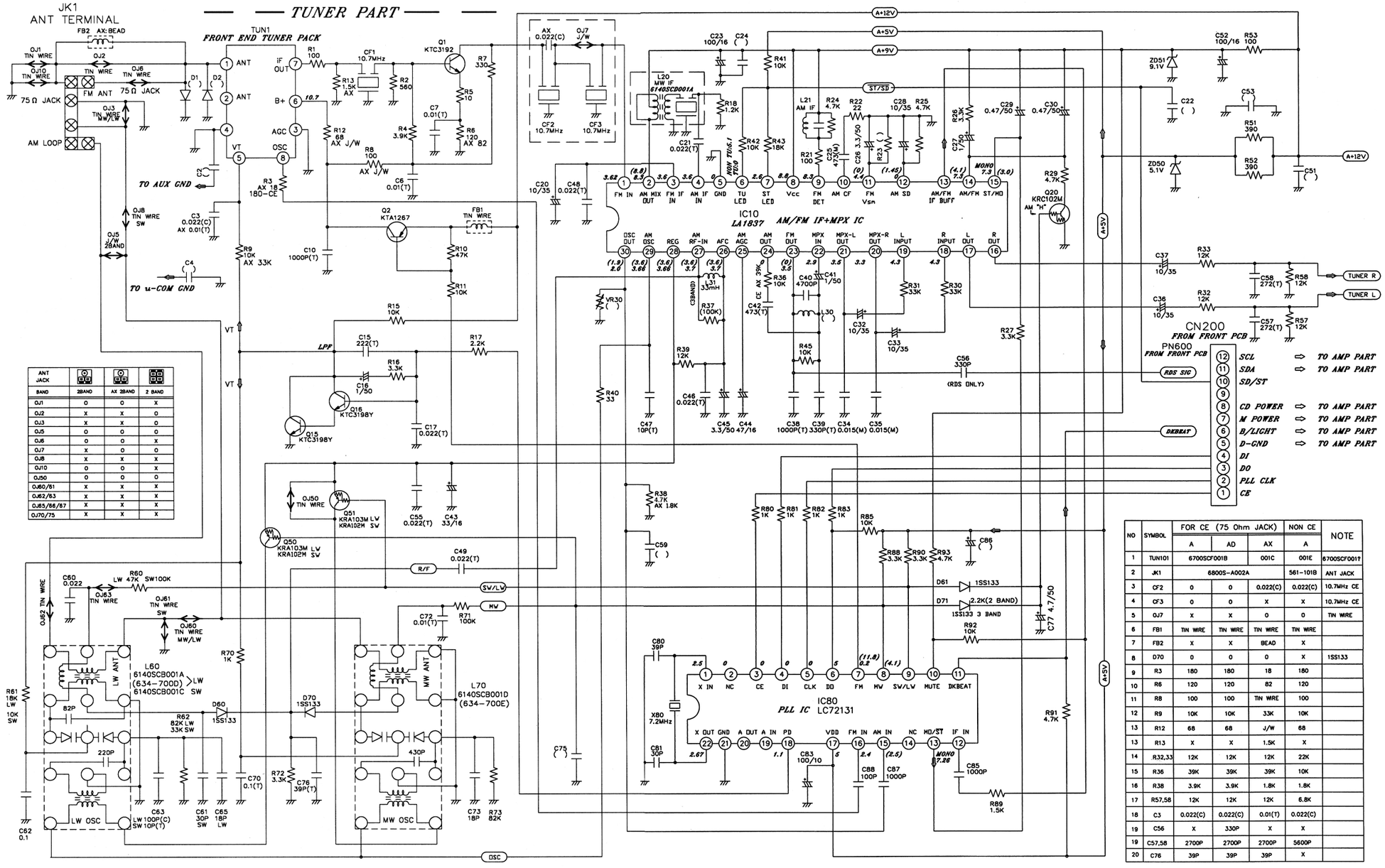




NOTES :

1. Resistance values are indicted in ohms unless otherwise specified (K=1,000, M=1,000,000).
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

• TUNER CIRCUIT



*VOLTAGE INDICATION
1.FM 2.( )AM

NOT USED : D1,D2 L30
VR30 R23
C2,22,24,43,51,53,59

NO	SYMBOL	FOR CE (75 Ohm JACK)			NON CE	NOTE
		A	AD	AX	A	
1	TUN101	6700SCF001B		001C	001E	6700SCF001†
2	JK1	6800S-A002A			561-101B	ANT JACK
3	CF2	0	0	0.022(C)	0.022(C)	10.7MHz CE
4	CF3	0	0	X	X	10.7MHz CE
5	OJ7	X	X	0	0	TIN WIRE
6	FB1	TIN WIRE	TIN WIRE	TIN WIRE	TIN WIRE	
7	FB2	X	X	BEAD	X	
8	D70	0	0	0	X	1SS133
9	R3	180	180	18	180	
10	R6	120	120	82	120	
11	R8	100	100	TIN WIRE	100	
12	R9	10K	10K	33K	10K	
13	R12	68	68	J/W	68	
13	R13	X	X	1.5K	X	
14	R32,33	12K	12K	12K	22K	
15	R36	39K	39K	39K	10K	
16	R38	3.9K	3.9K	1.8K	1.8K	
17	R57,58	12K	12K	12K	6.8K	
18	C3	0.022(C)	0.022(C)	0.01(T)	0.022(C)	
19	C56	X	330P	X	X	
19	C57,58	2700P	2700P	2700P	5600P	
20	C76	39P	39P	39P	X	

NOTES : 1. Resistance values are indicted in ohms unless otherwise specified (K=1,000, M=1,000,000).
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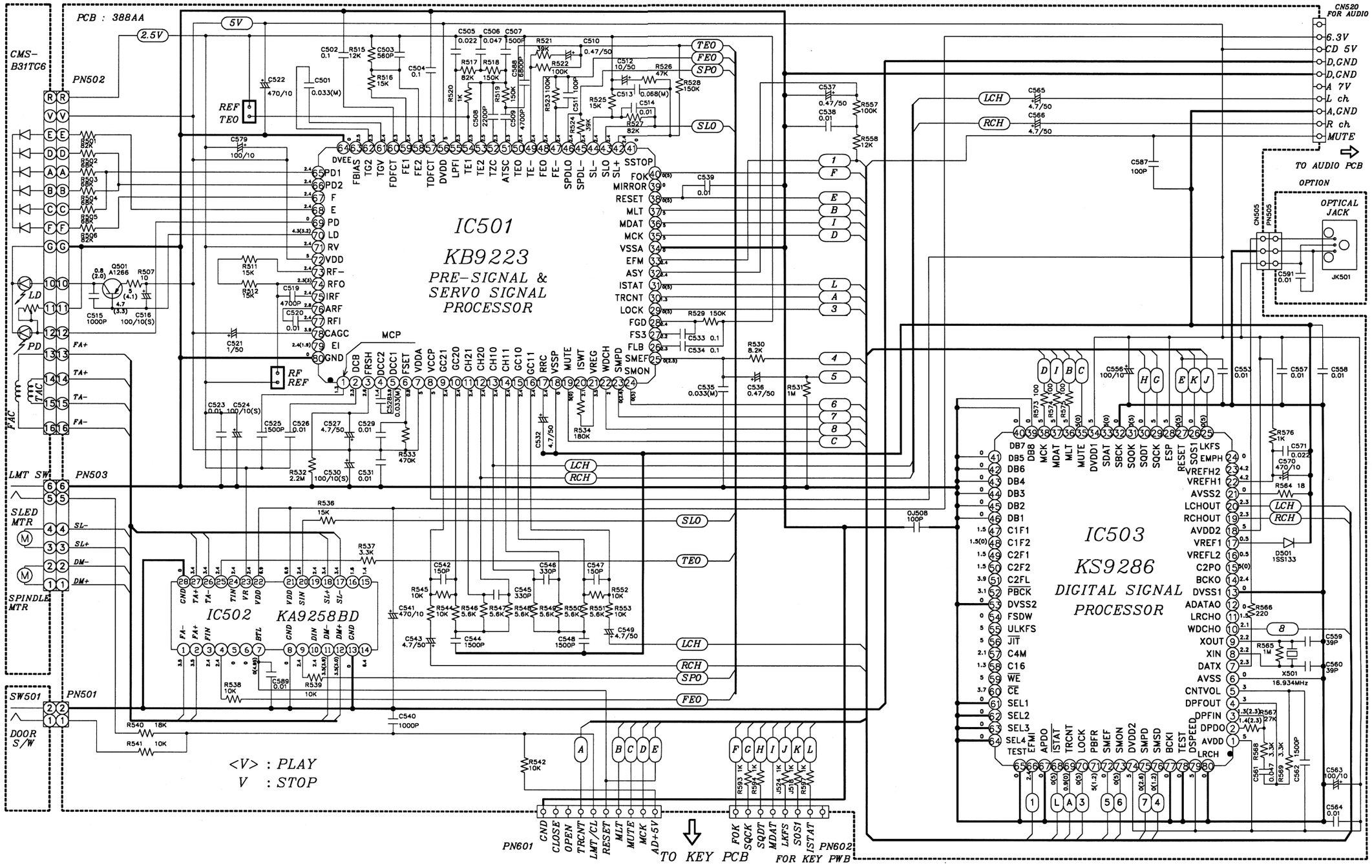
3. Schematic diagram for this model are subject to change for improvement without prior notice.

• CDP CIRCUIT



NOTES :
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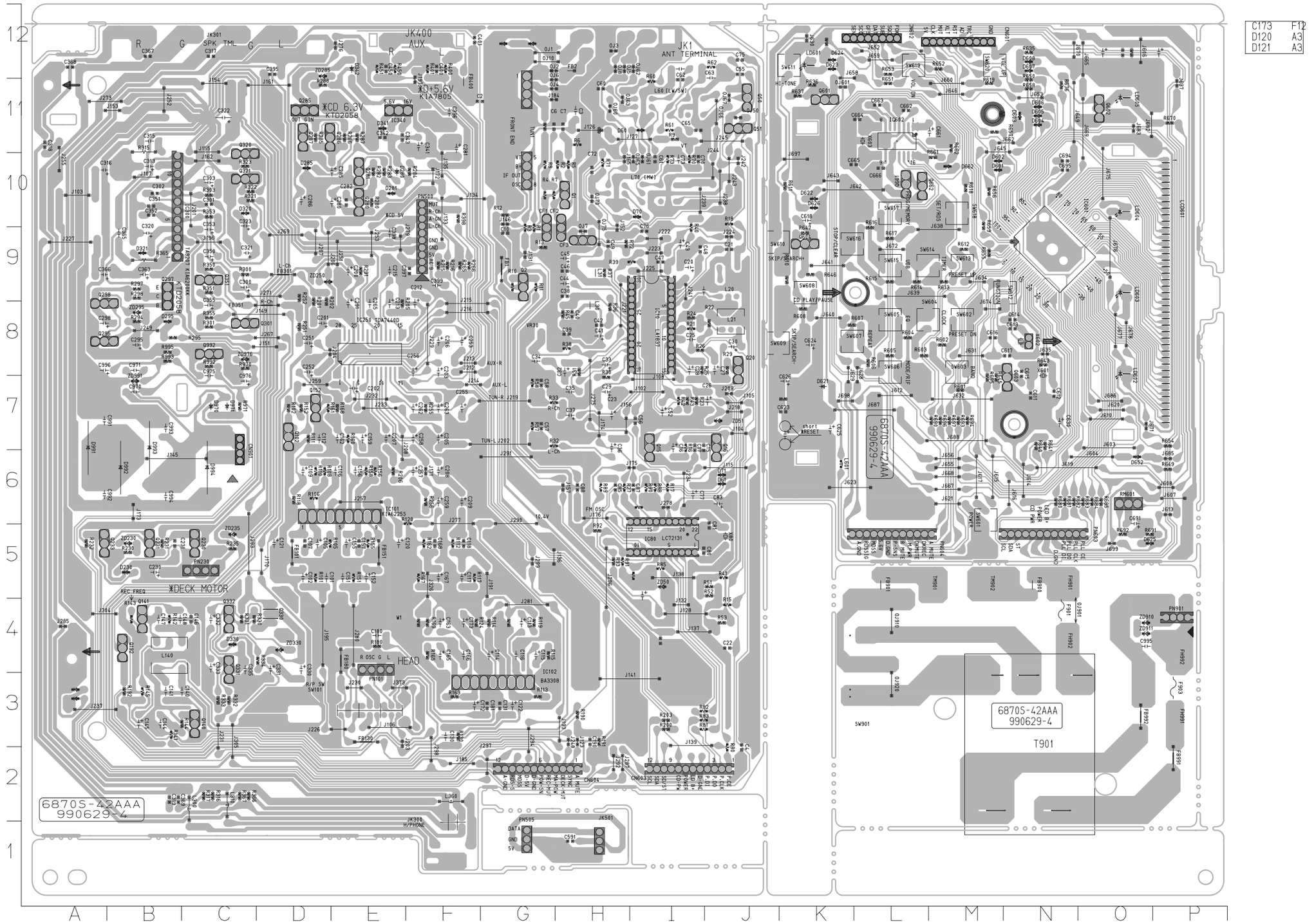
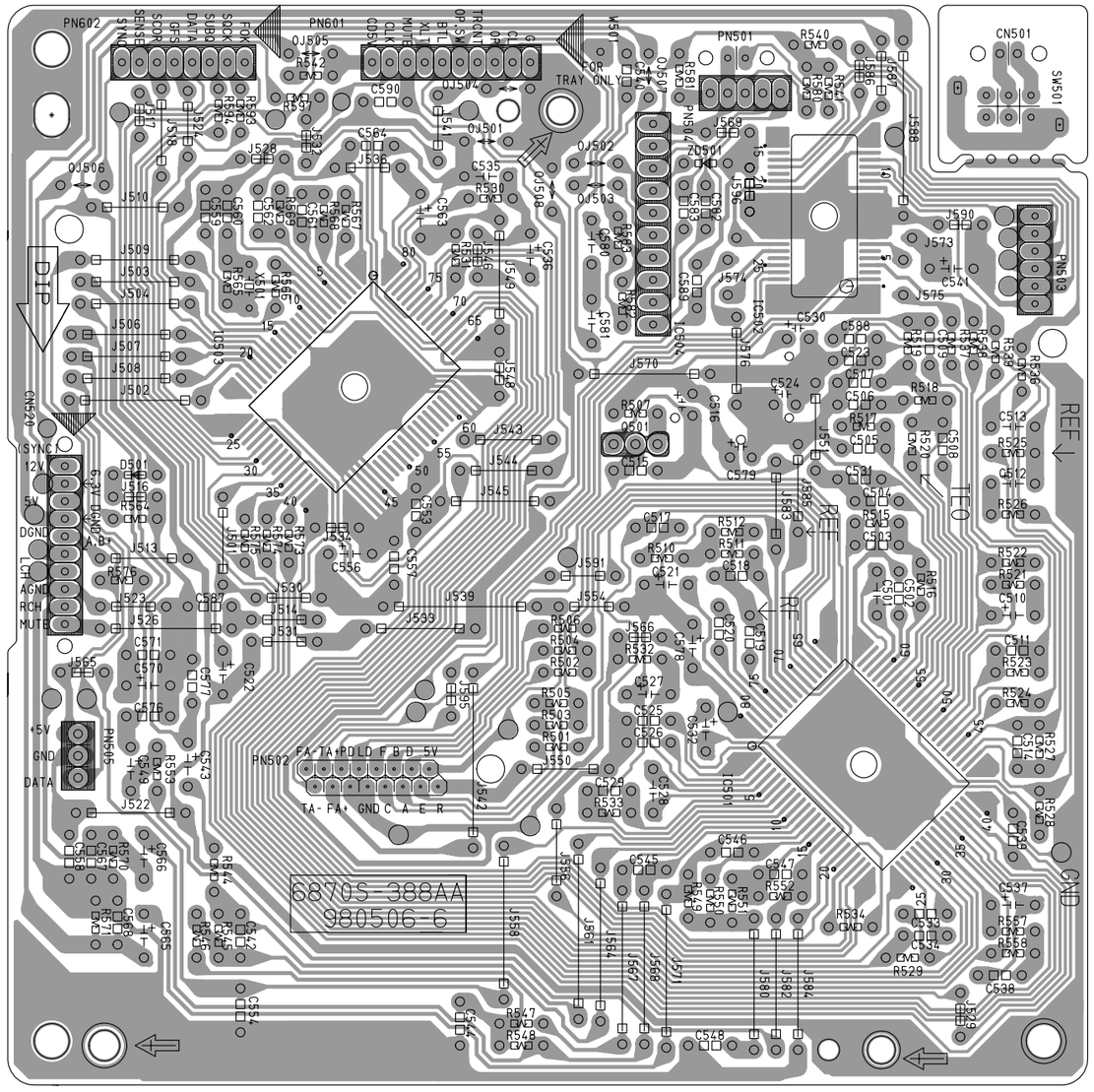
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

PCB LAYOUTS

• MAIN P.C BOARD

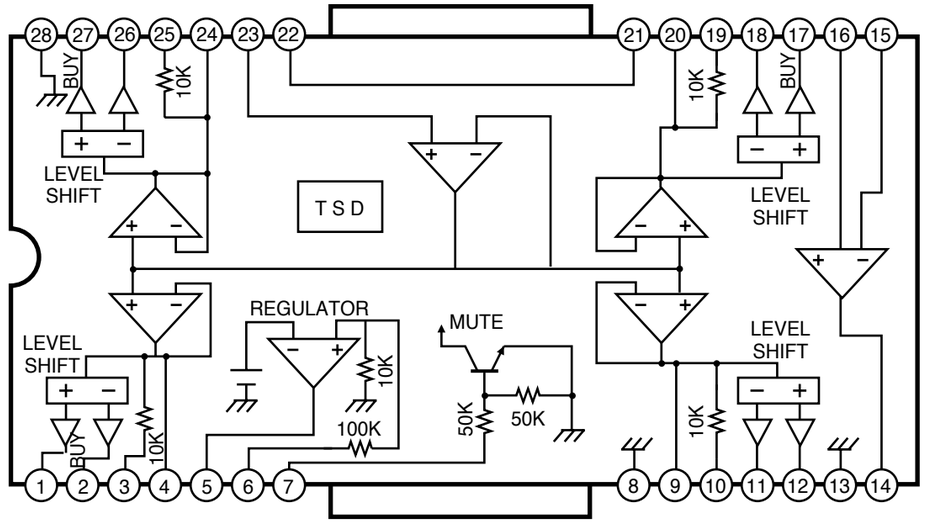


• CDP P.C BOARD

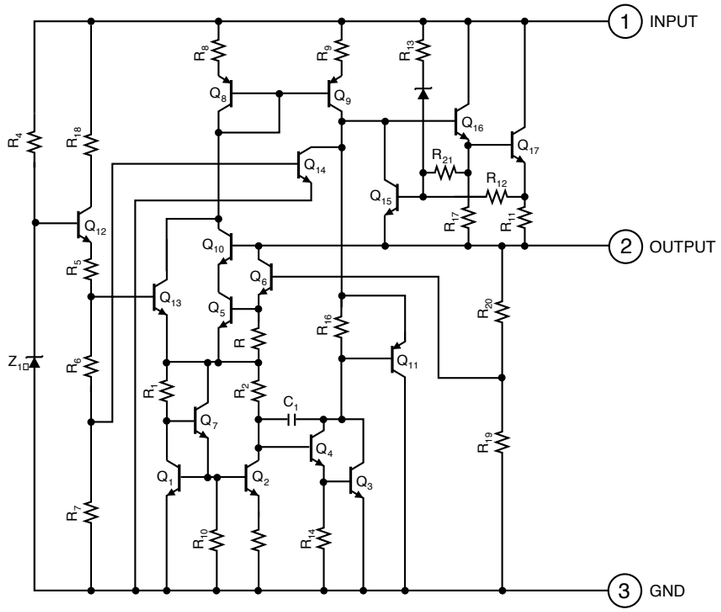


INTERNAL BLOCK DIAGRAM OF ICs

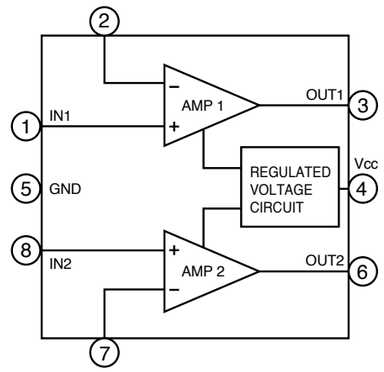
■ KA3010D



■ KIA7805 P/PI ~ KIA7824P/PI

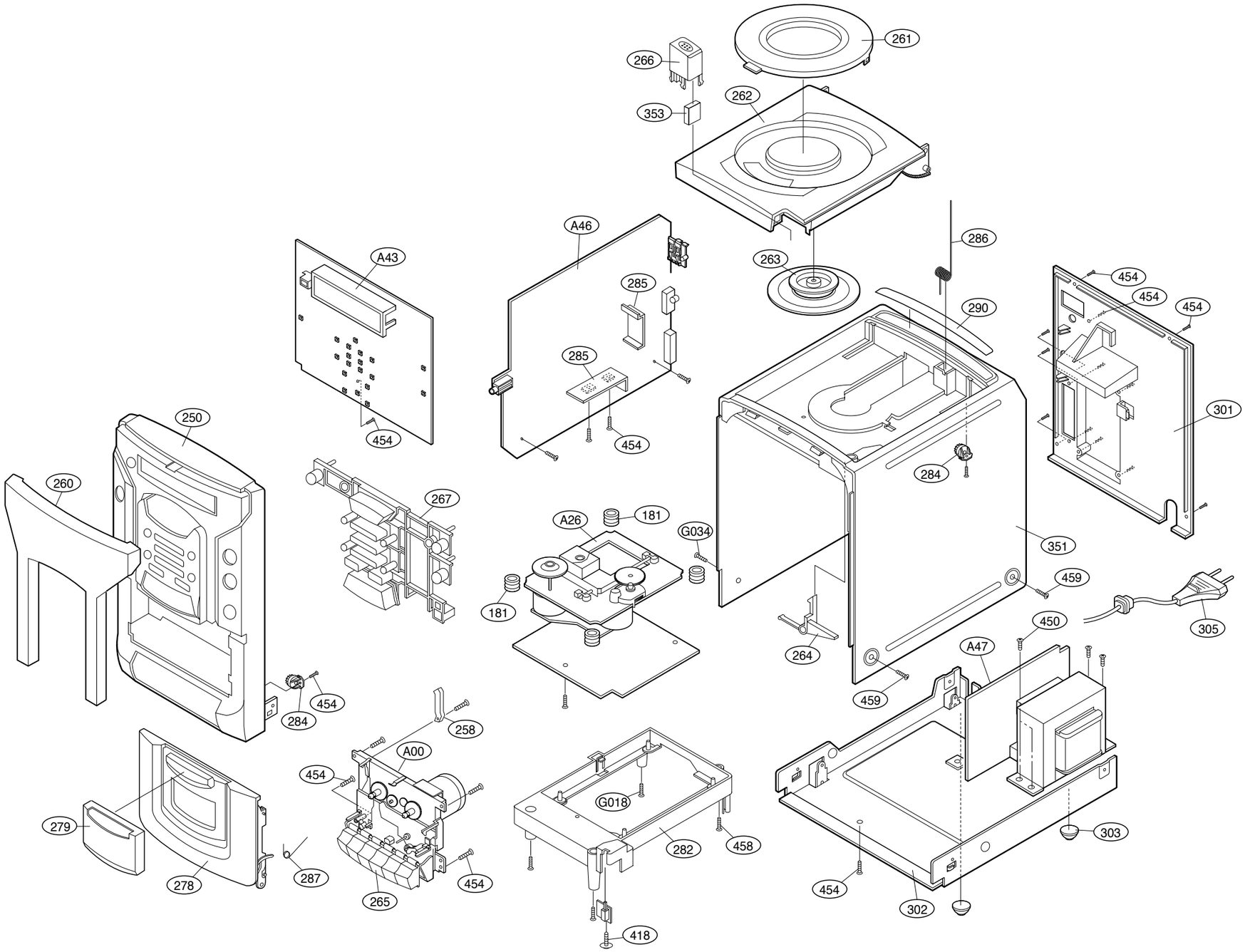


■ KIA6225S

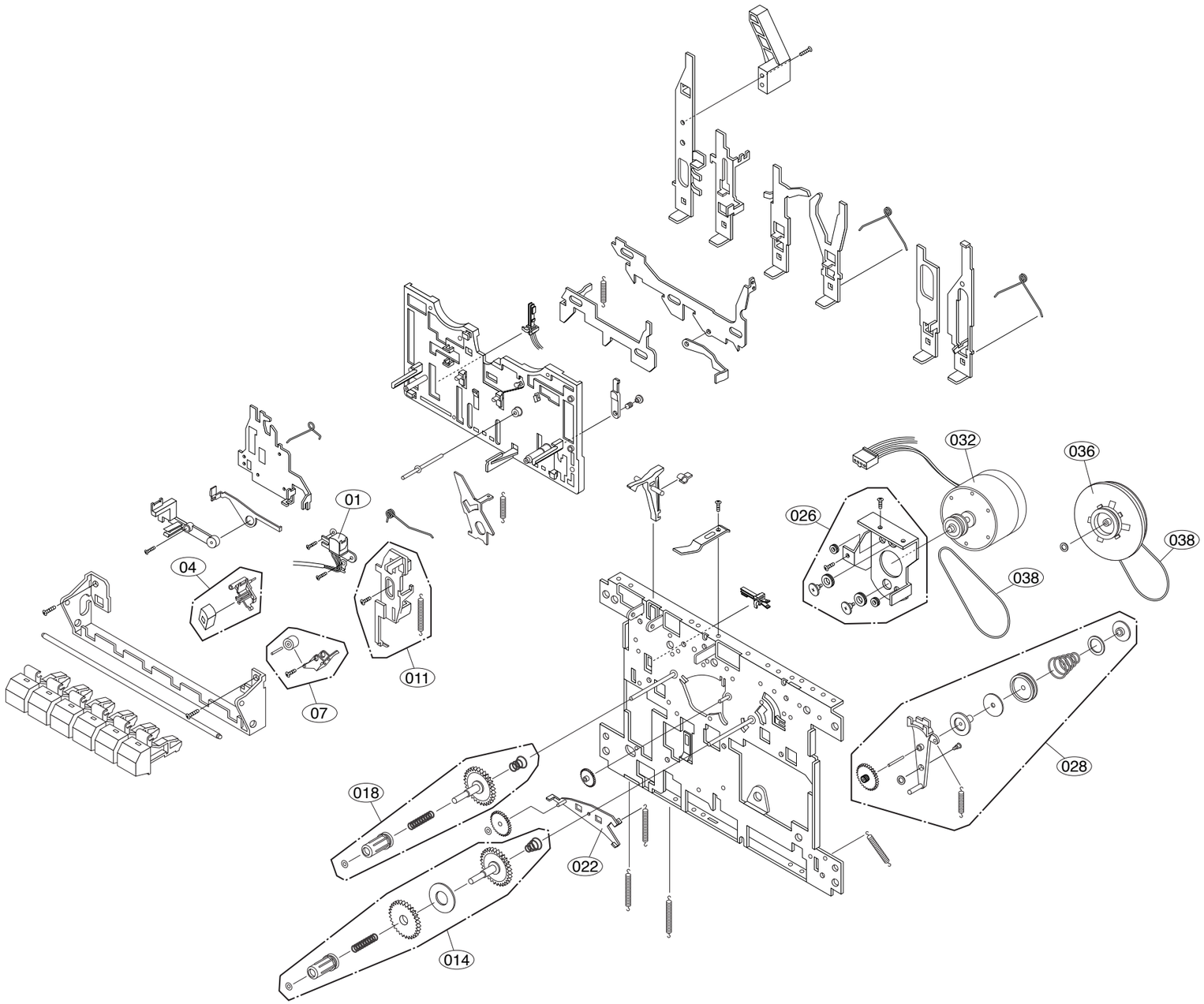


EXPLODED VIEW/PARTS LIST

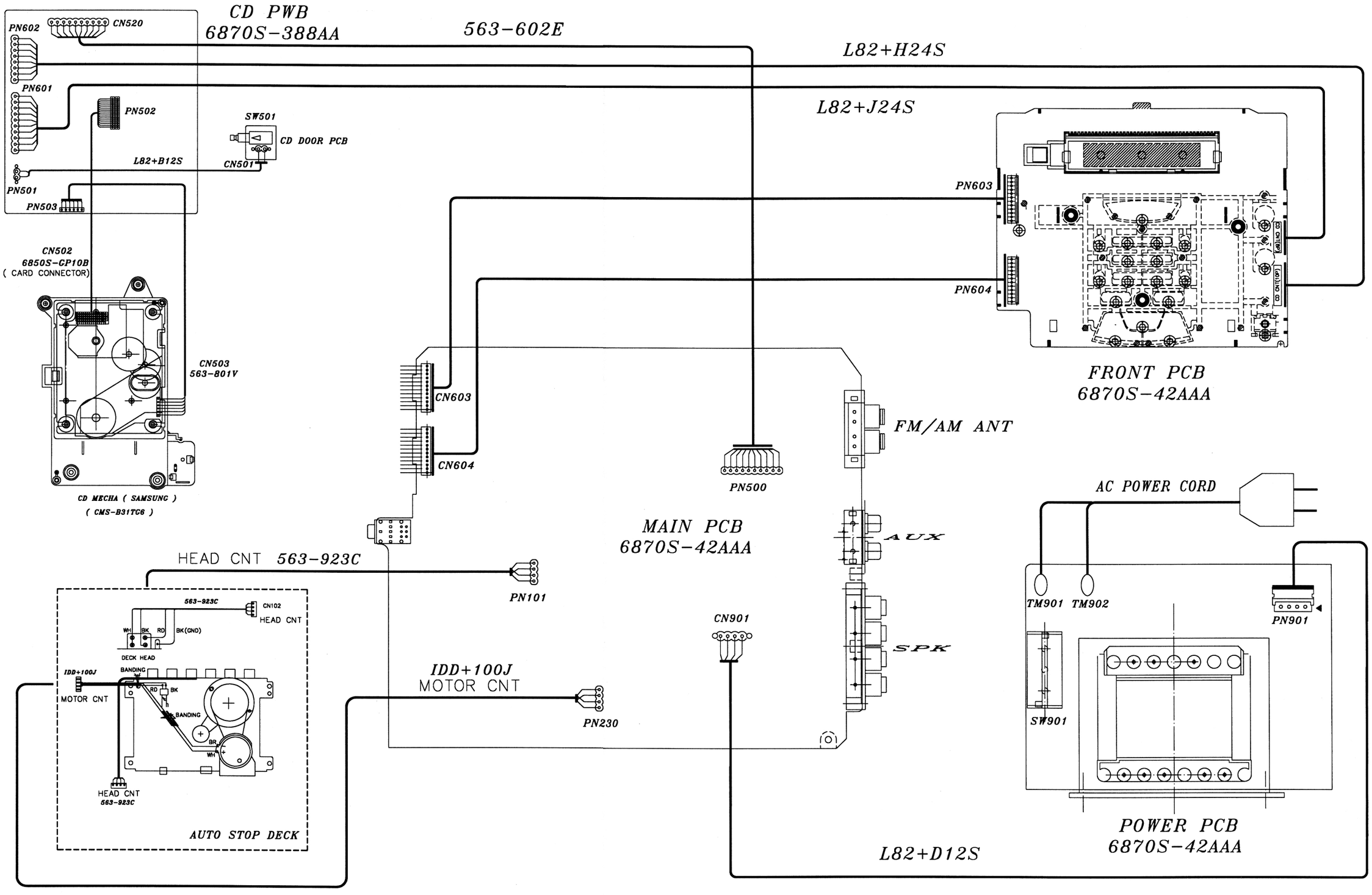
• CABINET



• TAPE DECK MECHANISM: AUTO STOP DECK



WIRING DIAGRAM



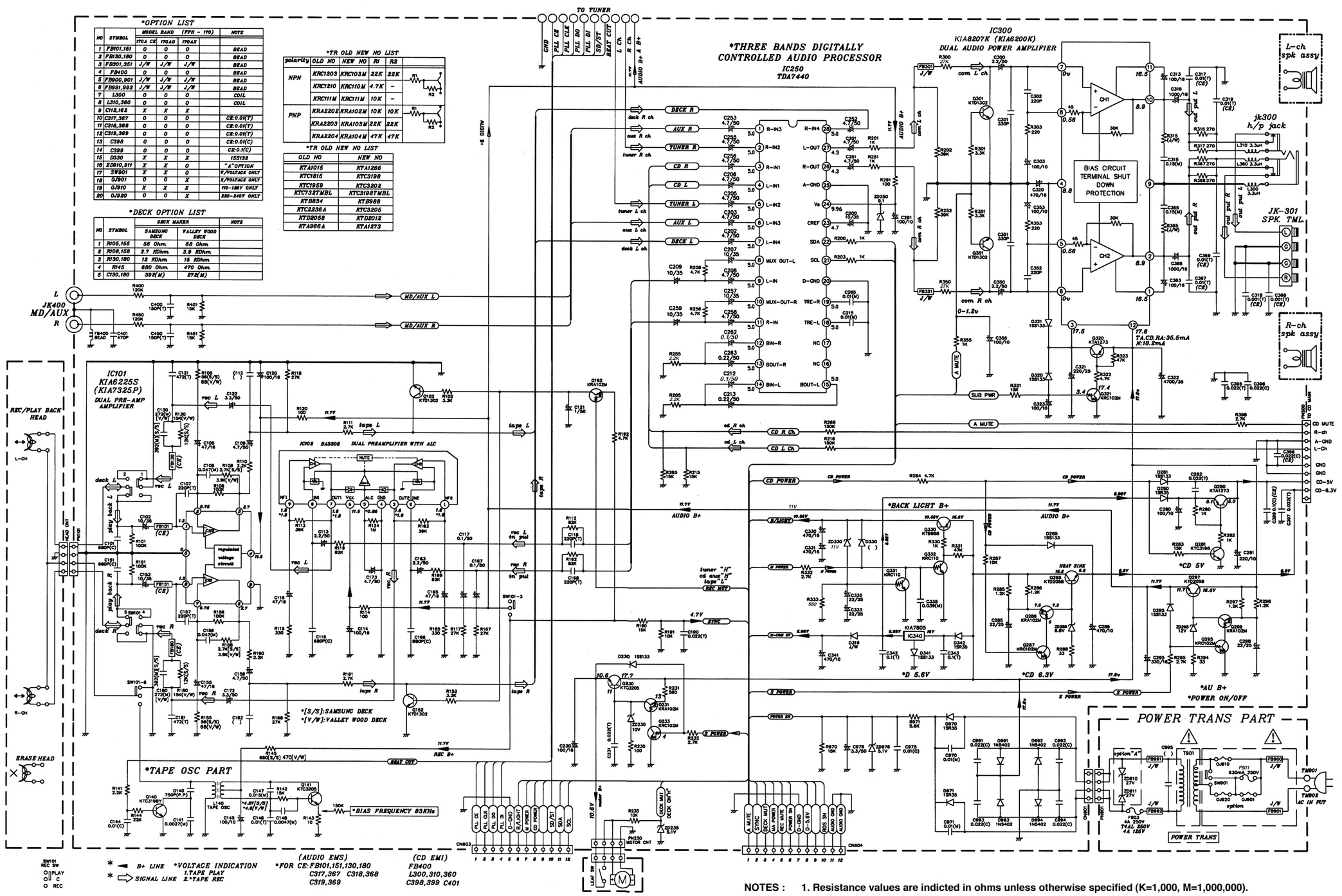
• AMP & DECK CIRCUIT

NOTE: Warning

⚠ Parts that are shaded are critical With respect to risk of fire or electrical shock.

NOTE:

1. Shaded(■) parts are critical for safety.Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmefer during Play mode.



NOTES :

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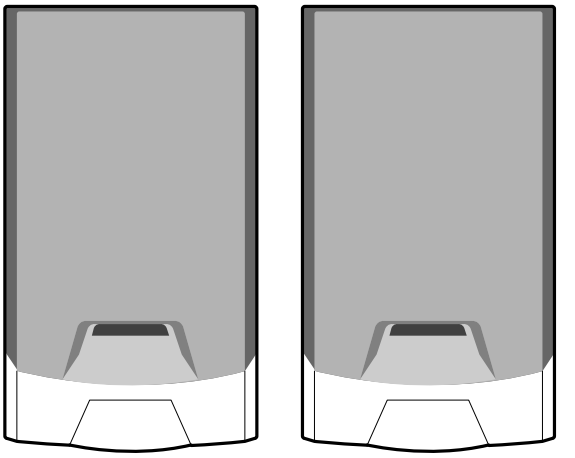
2. Capacitance values are shown in microfarads unless otherwise (P=MICRO-MICRO FARADS).
3. Schematic diagram for this model are subject to change for improvement without prior notice.

SPEAKER SYSTEM

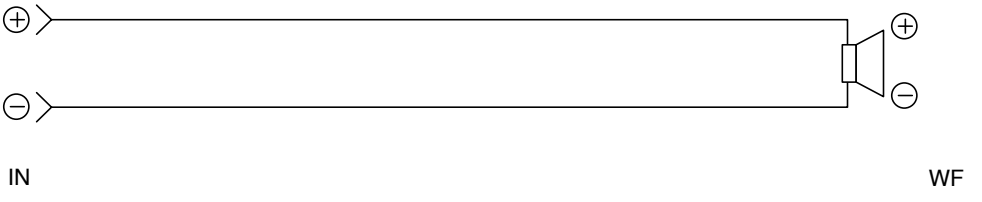
MODEL: FE-175E



SPECIFICATION

• TYPE		: BASS REFLEX 1 WAY 1 SPEAKER SYSTEM
• SPEAKER SYSTEM		: WOOTER 100mm(4”)
• FREQUENCY RESPONSE		: 90Hz~20.000Hz
• IMPEDANCE		: 4Ω
• S.P.L.		: 86dB/W(1m)
• RATED INPUT POWER		: 5W
• MAX. INPUT POWER		: 10W
• DIMENSION	NET	: 148(W) x 240(H) x 183(D)mm
• WEIGHT	NET	: 1.52kg

SCHEMATIC DIAGRAM



EXPLODED VIEW/PARTS LIST